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This research project attempted to evaluate changes in the specific educational behaviors of 73 underachieving urban Negro children and 17 underachieving middle-class white children who participated in the 6-week Friends/Morgan (F/M) summer demonstration program in the arts. Training sessions on applied operant theory and environmental design were held by the Institute for Behavioral Research for the F/M teachers and student interns to assist them in developing explicit measurable goals and procedures necessary to fulfill the goals of the program. The children were pre-and post-tested on the Primary Mental Abilities Test (PMA); changes in the scores of the major experimental group were compared with those of a comparison group drawn randomly from the entire school population (not only underachievers). Other behavioral data relative to these changes were accumulated. The Flanagan Aptitude Classification Tests measured the effects of participation in the program on the student interns. Photographic slides recorded the children's involvement. An appendix contains the script of an audiovisual presentation which overviews the entire F/M project. (Author)

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

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MEASURING THE CONTRIBUTION OF THE ARTS IN THE EDUCATION OF DISADVANTAGED CHILDREN

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August 15, 1968

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PREFACE

This paper is submitted as the Final Report of the research evaluation by the Institute for Behavioral Research staff under the Office of Education Contract No. 0-8-071108-1767. entitled "Measuring the Contribution of the Arts in the Education of Disadvantaged Children." (CAE)

This report contains a synthesis of the three previous Progress Reports evaluating the Friends/Morgan summer program, completed data on the Primary Mental Abilities Test for the year, recommendations resulting from that analysis, and the full script of the audio-visual presentation prepared in completion of project requirements. Also included in the appendix is a description of the daily curriculum-related tests, and samples of the data collection forms which were used in the program operation.

The reader's attention must be directed to the authors' concern for conclusions that may be drawn from certain data presented in this report. The data presented for all administrations of the PMA test include scores for only a sample of the entire population that comprised the students of the summer program. Second, this sample is not perfectly representative of the larger population as each member of the sample completed four successive PMA test administrations. Third, although the comparison group that was developed from the total tested population of the Morgan school was randomly constructed, it does represent the entire population of students from the Morgan school and not just "underachievers." Therefore, the comparisons of scores of these two groups is not intended to compare matched samples: the rejection of a CAE proposed research design by the Friends/Morgan Project staff precluded such analysis. The comparisons are then between "underachievers" and "average" students of the Morgan school. Finally, a general word of caution must be expressed regarding the inadvisability of generalizing to larger or different groups the results of the testing reported here.

SUMMARY

The general objective of the contract undertaken here was to provide assistance to a separately funded summer demonstration program (the Friends/ Morgan Project), which intended to increase the academic skill of 120 under-achieving inner-city children through an arts curriculum. This assistance was directed specifically toward (1) assessment of educational behavior change for students involved in the arts program through a battery of standardized testing instruments; (2) construction of brief achievement tests for use periodically through the summer demonstration project; (3) training of both teaching staff and student-interns prior to the initiation of the summer arts project; and (4) assessment of educational change for student-interns involved in the summer arts project. The operations of the contract were also divided chronologically into three phases. Phase 1 (April June, 1967) included the preparation of a research design and the training of Friends/Morgan teaching personnel. Phase 2 (June-August, 1967) included working with the Friends/Morgan personnel on the development of both the arts program and the testing instruments to assess its effects. Phase 3 (June 1967-March 1968) included all pre- and post-project testing sessions using the Primary Mental Abilities Test (PMA) as the standardized testing instrument.

All training sessions were conducted as proposed and initial assessment was made of particular student-intern academic skills. During the teacher training sessions, some teachers were resistant to the operant psychological techniques proposed for use in both the summer arts program and the CAE project. Certain topics of philosophical and professional contention between the F/M and CAE staffs were never resolved. During Phase 2. the CAE project staff maintained an office at the demonstration project site. Consistent records were kept of a variety of behavioral indices of student involvement in the summer arts program. Tests were usually administered daily to ascertain the degree to which the students could demonstrate their learning in the arts program. Attempts were made to maintain consistent liaison between all arts teachers and the staff of the CAE project to permit essential feedback for both groups. The results of the behavioral record keeping indicate that the children enrolled in the summer project maintained a mean attendance of over 90% for the project term. Also, certain of the arts activities were associated with numerous disruptions and non-participation by students. A series of four PMA test administrations was conducted through Phase 3 of the CAE project. Following rejection of a CAE staff proposed research design by the staff of the F/M project, test sessions were scheduled, and it was assumed that all evaluation of PMA test results would be undertaken simply as statements of gain (or loss) and would not be compared to a matched control group. However, after the second test administration in September, a randomly selected comparison group was developed from the entire school population tested. Results of the PMA testing over the 9 month testing study indicate:

(1) that the younger children (1st and 2nd grade) who participated in the arts program benefited more than the older children (3rd and 4th grade) did;

(2) that there was no statisitically significant difference between the mean PMA score changes of the entire group of children who participated in the arts project and those who engaged in no formal activity during the summer;

(3) that the younger children who participated in the project made important gains in the Perceptual Speed sub-test of the PMA, but that this gain was not significantly different from that made by younger children who did not participate in the project;

(4) that the older children who did not participate in the project made statistically significant, greater gains than participating older children on the PMA sub-test for Spatial Relations; and

(5) The total PMA test scores for the non-participating older children were significantly higher than the scores made by the older children who did participate.

Finally, the student interns who assisted in the conduct of the summer program were found to have made gains in certain academic skills following their summer program activities. The results indicate that if such an arts-based academic training program is considered for the future, clearer specification of goals must be made, appropriate research designs must be constructed and adhered to, greater consideration must be given to the individual preferences and pace of each student, functional feedback systems must be devised, teachers should be held responsible for the results of their arts programs, and greater community participation should be encouraged. It would also appear appropriate to consider other arrangements of art and other subject matter and different scheduling to promote academic change for children of this age range.

SPECIAL NOTE TO THE READER:

For the reader who wishes an overview of the Friends/Morgan Project, a general description of project operations may be found in Appendix 4, "Art with Friends," the script of an audio-visual presentation designed to describe the summer program.

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INTRODUCTION

It was the intention of this project, "Measuring the Contribution of the Arts in the Education of Disadvantaged Children (CAE)," to ascertain, by direct objective systems of measurement and validated recordable subjective systems, the change in specified educational behaviors of the 105 children and 26 intern-trainees who were to participate in the Friends/Morgan Demonstration Project in the Arts at the Sidwell Friends School for six weeks in the summer of 1967.

The Friends/Morgan Demonstration Project proposed to increase and maintain educational behaviors by sharpening listening, observation, and motor behaviors, by increasing awareness of spatial relationships, of size relationships, of shapes and structures, by increasing awareness of sequences of time and forms of measure. An additional qualifying characteristic of the program was that the participating children were to be selected from the Morgan community area (a predominantly low to middle income Negro community). Further, students to be selected from this population were to be academic underachievers within their own school situation. The demonstration program proposed to help these underachieving youngsters perform more successfully on their return to the traditional school system.

It was hypothesized that six weeks of active participation in a well formulated arts program could

(a) reinforce involvement in learning academic skills, such as reading and arithmetic, for those children whom the regular school situation had failed to motivate;

(b) reinforce success-seeking and problem-solving behaviors for those children who had lacked success in the traditional procedures of the regualr school program;

(c) inspire the will to learn.

The "increased will to learn," as it applies to academic learning, is best proven by measurable behaviors. Increased strength in the foundations of reading and arithmetic therefore can best be deduced from increased testable student achievement. The Thurstone Test of Primary Mental Abilities (a national standardized test) was administered four times over a period of nine months to the children participating in the demonstration program and to a comparison population--to measure changes from the pre-program level of achievement to post-program achievement, and to observe how these changes were sustained during the course of the school year.

The CAE was not designed to measure the increases in the skills in the arts which the demonstration program specifically taught. However, one aim of the research was to assist the Friends/Morgan staff in the development of their own operational procedures which could assist the testing of their existing hypotheses. For this purpose a series of intensive training sessions (funded elsewhere) were given for the staff and interns to orient them to behavioral analysis theory and procedures, and environmental design.

The demonstration program also proposed to teach, through the medium of the arts, a curriculum of conceptual skills thought to be useful for success in academic behaviors in general and for reading and arithmetic in particular. CAE did construct and administer very short daily tests aimed at measuring previous knowledge of these conceptual skills and the increases in recordable behaviors pertinent to them, following the related activities of the program which proposed to teach them.

Other data were gathered whose relevance may perhaps belong in the area of therapeutic intervention or mental health. Measures were made of the amount of time the children were involved in non-participatory or disruptive behaviors, as opposed to participating attentive behaviors.

Numerous photographic slides were taken as a qualitative record of the visible and positive involvement by the children--their pleasure in participation, pride of creation, and focus of intense attention. These are presented in a slide documentary which describes the activities of the program.

Additionally, a series of pre- and post-program Flanagan Aptitude Classification Tests were given to the group of high school students who served in many capacities as interns in the program. This was designed as a measure of specific gains from their involvement.

METHODS

The procedures employed in this research project were similar to those carried out by the author and his staff at the National Training School for Boys. They were also a direct outgrowth of procedures developed while the author was chairman of the Design Department at Southern Illinois University and director of the Experimental Freshman Year--a program for the lower one-third high school students entering the university. Attention will be focused on the following aspects of the project:

(1) Training Sessions for the Friends/Morgan Staff.

(2) Administration of Standardized Tests.

(3) Operations of the Program.

(4) Preparation of the Slide Presentation.

Training Sessions for the Friends/Morgan Project Staff

To assist the staff of the Friends/Morgan Demonstration Project in developing explicit measurable goals in their daily curriculum and to develop measuring procedures for these goals, training sessions in applied operant theory and environmental design were scheduled before the inception of the program.

A number of training sessions were contracted by the Friends/Morgan project and designed by the CAE research staff. Prior to the six-week Friends/Morgan Demonstration Project, one series of three sessions was held for the student/interns and another series of four sessions was held for the teaching staff. Both series were designed to include the following:

1. To inform the participants of the recent developments in the design of CASE (Contingencies Applicable to Special Education) as demonstrated at the National Training School for Boys by the CASE project director and research staff. This orientation and project description was carried out through a 40-minute, three-screen slide presentation and a one-half hour film which demonstrated the ecological systems involved in maintaining learning behaviors in controlled environments; and through two 1-1/2 hour lectures on the specific procedures and systems of measurement utilized throughout the CASE project.

2. To teach, through a series of 1-1/2-hour lectures and measurements (tests) given by Dr. Israel Goldiamond (Executive Director, Institute for Behavioral Research), the analysis of behavior and the application of the general principles of behavior to curriculum development.

3. To instruct the participants, through a series of 1-1/2-hour

lectures and tests, and demonstration workshop sessions in environmental design, how to initially examine their existing educational environment (students, staff, materials, and space) and be able to isolate and work with some of the many environmental cues which could help maintain and increase the learning of the children selected for the summer program. This course was taught by the principal investigator.

4. To demonstrate how to develop specific tests, forms, and procedures directly applicable to the curriculum design of the summer project. This series of workshops was run by Mr. Harold L. Cohen, principal investigator, Mr. James Filipczak, Associate Educational Director of IBR, and Mrs. Joan Cohen, Associate Director of the CASE research project.

Student-Intern Training Sessions

Three seven-hour training sessions were held specifically for the 28 student-interns. Twenty-one of the interns were selected from the sophomore and junior classes of the Sidwell Friends School and seven from the Morgan community.

Session 1 was scheduled for May 6, 1967, but was postponed to May 13 because of intern participation in College Board examinations. This session, held at the National Training School for Boys, introduced the students to behavioral technology, utilizing as display models the films of the Experimental Freshman Year research project at Southern Illinois University and the CASE II demonstration project at the National Training School for Boys.

The Experimental Freshman Year project (1962-1963) was a program designed for students graduating from the lower third of their high school class. The wholistic approach to learning was demonstrated. CASE II (1966-67) was a demonstration research project in educational environmental planning held at the National Training School for Boys.

This examination of the merger of operant psychology and environmental design on a practical plane demonstrated particular techniques for use in the educational area. A review was given of particular forms that were used for collecting data at the CASE II project, to illustrate their development and use.

Session 2 was held on May 20 at the Institute for Behavioral Research. The purpose was to examine procedures used in defining instructional objectives. A pre-test was given by the IBR staff on the text entitled "Preparing Instructional Objectives" by Mager. The interns corrected their pre-test papers, discussed some of the questions, and were assigned the text for home reading. A series of filmstrips were shown (Vimcet) which demonstrated procedures for curriculum evaluation.

This session further examined principles of operant learning, and a tour of the laboratories at IBR provided examples of current research in operant psychology. The interns were given a home assignment for problem-research in operant psychology. They were asked to state a problem they had observed in their environment, to phrase the terminal objectives desired in behavioral language, to describe the methods they felt would shape the desired behavior, and to state the final effects of their methods.

Session 3 was held on June 17 at IBR. The discussion centered primarily on the presentation of the home assignment in problem-solving given to the interns at Session 2. Examples of the variety of problems presented by the interns included weight control, household task assignments, time scheduling, and reading skills. The students' own written statements of their problems clearly indicated their ability to use operant language and the scientific procedures that they had been exposed to thus far. In addition, the discussion of the problems by the group further demonstrated their awareness of the applicability and use of some of the behavioral techniques.

This session was also used for the pre-program battery testing of the interns. This battery (FACT) was selected because it measured some of the areas of possible change--increase or decrease of specified educational skills that would be implemented during the course of the six-week summer program. Identification of shapes with regard to detail, critical examination of forms, reading comprehension, logical reasoning, and mathematical skills were measured through a series of pencil and paper tests. The scores from this pre-program battery were to be compared with scores from the same tests given at the end of the summer session.

Teacher Training Sessions

A separate series of four sessions was scheduled for the teaching staff of the Friends/Morgan project. Essentially, staff sessions involved the same core of materials presented to the student-interns, but geared to the teachers' professional status and curriculum development needs.

Session 1, the orientation session, was held Friday evening, May 26, at the Institute for Behavioral Research, from 7:30 to 10:30 P.M. The staff received a pre-test on "Preparing Instructional Objectives," and the text was assigned for home reading. A general overview for the succeeding CAE research relative to the Friends/Morgan research and teaching was established and goals were stated.

Session 2 was held on May 27 at the National Training School for Boys from 9:00 A.M. to 4:30 P.M. Films were shown on CASE II and the Experimental Freshman Year; lectures were given on the current work in the field of applied operant psychology. It was emphasized that the basic tenets of research involve determining the terminal goals, establishing the conditions for the behavior, moving in small logical steps toward the terminal objectives, and testing the criterion for those terminal goals. During a lecture on the analysis of behavior, several questions were posed concerning the areas of the teacher's responsibility. It was asserted that the teacher is, in the final analysis, responsible for the effectiveness of her teaching upon the children's achievement. Some of the teaching staff of the Friends/Morgan project indicated that they were not ready to assume this responsibility. Further, there was a feeling that any evaluation of the daily curriculum was an evaluation of the individual teacher and posed a threat.

Session 3 was held on May 28 at the IBR, from 10:00 A.M. to 2:00 P.M. In an effort to dispel any fears, a portion of the third session was set aside to air the problems raised during Session 2, centering around the teacher's responsibility for student performance.

A continued effort was made to develop a further understanding of the behavioral environmental approach--to determine what were the teachers' present repertoires for the stipulation of their educational goals. There was some resistance to this approach, and about one-third of the teachers continued to maintain an attitude of defensiveness throughout the term of the demonstration program. Because of the extra time taken for the discussion, it was necessary to schedule an additional session to complete the training.

Session 4 was held on Thursday, June 22, at the Sidwell Friends School. A series of films (Vimcet) presented procedures for defining educational objectives. Data-recording forms prepared by the IBR staff for the teachers' use were distributed. The teachers met in small groups to analyze the data forms in terms of their needs for evaluation, and changes were made to provide clarification. (See list of films in Appendix.)

Administration of Standardized Tests

Pre-Program Tests

The principal objective of the research is to ascertain the increase in specific educational behaviors for both the children and the student-interns as recorded by an objective system of measurement. To fulfill that objective a series of standardized tests were administered. Measurement of change in specified educational behaviors was effected by pre-testing the populations before the commencement of the program and post-testing on the same instrument at the conclusion of the F/M demonstration program. Scores from these tests were to provide an educational baseline from which specified academic behavioral changes could be measured. Measurements were also made of student intern test performance before and after participation in the program.

The Children

The groups measured were (1) the experimental group from the Morgan area who participated in the six-week program, (2) a comparable group from the same area who did not participate, and (3) the small group from the Sidwell area who did participate in the program. Both the experimental and comparison groups of Morgan children were drawn from the same pre-testing sessions at Morgan School where the first series was given. Morgan School was the source of the major portion of the program population. The test instrument, Primary Mental Abilities Test, published by Science Research Associates, was selected because it provided sub-tests that related to the curriculum themes and categories of emphasis in the program (verbal abilities, spatial relations, number concepts, perceptual speed). Although standardized tests have come under criticism for their validity in evaluating IQ levels and performance capability, the PMA was used as a pre- and post-program test to determine changes in the children's performance. At no time was the test to be considered as an evaluation of IQ level. Mental age scores were computed for the sub-tests of different abilities: verbal, numerical, spatial, perceptual. Data results are expressed in terms of years of growth in comparison with the norm. The data from these tests were to be used (1) to assist in the selection of children who would be invited to participate in the Friends/Morgan project, and (2) to measure the children's pre-project performance in specified areas.

Although a request had been submitted to the District of Columbia public school system on May 5, 1967, permission to test was not granted until June 9. A one-day notice was given to the teachers at Morgan School on Monday, June 12, that the testing would take place on Tuesday and Wednesday, June 13 and 14. The teachers were confronted with the rigors of end-of-year pressure. Consequently, the test sessions proved to be an inconvenience for the Morgan staff.

The total of the Morgan School kindergarten-through-third-grade population was 513. Nine members of the IBR staff administered the tests to 18 classroom groups of 25 to 35 children. One-half of the test was to be administered to each group of children on two consecutive days. Because of the many schedule changes, some of the groups had to be tested in a single session, on Thursday, the last day of school.

In spite of absenteeism and scheduling problems, the total test battery was taken by 342 of the children in kindergarten through third grade and partial tests collected on 96 other children. The comparative group was randomly selected from those children who did not participate in the F/M program. (Upon completion of the test, the children were given the Pentel felt-tip pens which they had used during the test session as reward for their cooperation.) Slides were taken of the school and the test sessions, as visual records to be used for the 35 mm, three-screen audio-visual presentation.

On June 21, the same test was administered at the Sidwell Friends Lower School to thirteen prospective participants from the Sidwell Friends community.

The Student-Interns

Educational changes were anticipated for the student-interns who assisted in the functioning of the program. It was hypothesized that these interns would increase their skills in the same areas being emphasized for the children--namely, math and reading. Since close supervision of the children was required, it was also felt that observational and reasoning skills would be increased. Therefore, on June 17, during the final student-intern training session, and prior to the start of the Friends/Morgan project, pre-program tests were administered.

Four tests were selected from the FACT battery. The Inspection and the Components tests measured the ability to identify details, especially in complex visual discriminations. The Judgment and Comprehension test measured reading skills, logical reasoning, and judgment in practical situations. The Arithmetic test measured simple numerical skills of addition, subtraction, multiplication, and division. As with the children this pre-program test administration provided a baseline for a post-program comparison.

Post-Program Tests

In order to measure the amount of change in specific educational behaviors resulting from the six-week Friends/Morgan project, the PMA and FACT were administered as post-program tests. The scores from this administration were to be compared with the scores from the pre-program testing of the students and interns.

Although the project was scheduled to conclude on Tuesday, August 8, several parents indicated that their children would not return after Friday, August 4. Testing was therefore scheduled for two 40-minute sessions during the morning class period on Thursday and Friday, August 3 and 4. The post-testing schedule was disrupted on Friday, when a special final dance program overran its time schedule and usurped the PMA testing time. An attempt was made to enable the youngsters affected by this change to complete their tests, but some tests were not finished.

The general test atmosphere differed considerably from the pre-test arrangements. The children were tested in groups of 15 to 20, with a test reader and at least one student-intern to monitor. The children were seated at tables in the home room classes, a more formal situation than the daily testing for which the children had sat on the floor or at their work benches. This change established an atmosphere of seriousness and attention which greatly impressed the staff members who had administered the pre-test to the same children.

The FACT tests were administered to the student-interns on Thursday and Friday, August 3 and 4. The same testing schedule that released each grade of children from one morning class also released the interns who ordinarily worked with them so that they could be tested.

Comparative Population and Testing

The original research design had planned for pre- and post-program testing as evidence of the effects of the program. However, at the end of the six-week program, it was decided that changes in test scores for the experimental group of children from the Morgan area might most meaningfully be compared with a randomly chosen and therefore average population of children from the Morgan School who had not participated in the program.

Two attempts were made to secure a comparable group from the large number of children who had been pre-tested at Morgan School and had not participated in the Friends/Morgan summer program. The first attempt was made on September 7, just before school opened. Of the children notified, 16 children completed the PMA test. This was administered by the IBR staff in the Morgan School building which had been made available by the director of the new Morgan Community School program.

The results from the September 7 sample group indicated that a larger sample should be tested for accurate comparison. Because of the poor attendance at the first testing session, an additional system of rewards was put into effect for the second attempt. Letters were sent to 150 parents of randomly selected children in the Morgan School from the group which had been tested in June. The parents were told that a payment of $5.00 would be made to them upon their child's completion of the test, and that the child would receive a story book. The payment was to defray the costs of getting the child to school on Saturday, September 23, at 10:15 A.M.

Of the 150 letters sent, 52 were returned as positive replies, 19 were returned by the Post Office (address unknown, no forwarding address, etc.) and one vocal, negative response by telephone castigating the "white establishment for using Negro children for guinea pigs." Several parents called inquiring about the use to which the test scores would be put; their underlying concern was a possible adverse effect on future school grading for the children. It is believed that this fear may have affected the total attendance and that this could be avoided in future correspondence with the parents.

With an expectation of 52 children, 45 attended the test session. Three came without having returned their letters, and two came too late to participate. One little girl, reluctant to take part, went home at the first break in the session, but returned during the second session due to her mother's urgings. The parents who came to pick up their payment at the end of the session seemed pleased with the payment, and indicated they would encourage their children to participate in the future.

The experimental group referred to in the First Quarterly Progress Report consisted of 55 Morgan School students who completed the pre- and post-program tests in June and August. Of the 55, 35 were contacted and tested the third time in December 1967.

The comparison group referred to in the previous progress report consisted of 41 children from the same Morgan School population who were pre-tested with the experimental group, but did not participate in the program. They were retested separately in September after the end of the program. Of the 41, 29 were contacted and tested a third time in December 1967.

Efforts at contacting the entire 92 member Morgan School experimental group and 41 member comparison group for the December test revealed that 33 of the 133 children (24.8%) had transferred from Morgan School.

REPRESENTED SCHOOL	EXPERIMENTAL	COMPARISON
Morgan	66	34
Adams	11	-
Other D. C. Schools	9	5
Transferred from City	1	-
Unknown	5	2
TOTAL	92	41

Location of Children as of December 13, 1967

The mobility of residents within center-city communities is quite common. In September 1967, Antioch College initiated a community school program at Morgan Elementary School. Not all of their procedural innovations met with parental approval, and additional impetus for transferring from Morgan School developed from the dissension between the Antioch personnel and parents of the Morgan School children. In the intervening months following the start of the 1967 school year some of the problems appeared to have been resolved for the number of transfers were reduced.

Among the changes at Morgan instituted by the Antioch program in September, was a shift from the original system of grouping the children by grades to a system of age-ranking. Prior to the December testing the class roll books were reviewed by CAE staff in an effort to administer the same form of the test (K-1, or 2-4) to each child in December as had been administered at the original testing in June 1967. With few exceptions, the K-1 form was administered to 8 groups of 6-8 year olds, the 2-4 form given to 4 groups of 7-9 year olds and 4 groups of 8-10 year olds. Of the 438 children tested in June 1967, 262 were retested in December. An additional 171 children were tested in December for the first time: some were enrolled in June but absent on the test days; others were new students in the school.

The June administration of the PMA was intended to assist in the selection of participants in the Friends/Morgan project, and all of the children in grades kindergarten to three were tested. In December, in order to minimize the disruption of class schedules, avoid overlooking individual children shifted by the new class arrangement, and preclude setting aside the report group for special attention, it was decided to follow through with testing the same group of children as had been tested in June.

By the final test session, March 1968, the experimental group consisted of 31 students to whom all four tests had been administered. The comparison group consisted of 29 children meeting the same test specifications.

Operation of Program

The six-week Friends/Morgan Demonstration Project was held at the Sidwell Friends Middle School from June 26 to August 8, 1967. Space for the CAE research staff and equipment was provided in one of the eight classrooms on the main level of the building. This room was the base of operations for the production, distribution, and collection of data forms; the development and reproduction of the daily tests; the correction and examination of test results; the analysis and review of incoming student and curriculum information; the posting of research data; and the formulation of the ongoing research procedures.

Forms

The daily supply of forms was maintained by the secretary. These included forms for (1) the home room, (2) class evaluation, (3) club evaluation, (4) class participation, and (5) club participation. Once the structure of a form was developed and the class or club enrollment was established, stencils were cut and copies mimeographed. To facilitate record-keeping, the sheets for each home room, morning art class, and afternoon club contained the list of students enrolled in that group. This totaled 108 different sheets distributed each day. Storage was provided for the data collection forms on bookshelves adjacent to the office door and convenient for pickup by the research teachers and research interns. The "Return Boxes," labeled for teacher or intern data sheets were located opposite the pickup shelves.

Incoming Data

The data clerk was responsible for the collection and posting of data from the forms placed in the return boxes by the research teachers and the research interns. The data clerk maintained a daily checklist to ascertain the missing data sections and to encourage the staff to return the forms. Information on attendance, participation, disruptions, and completed tasks was posted on large sheets, providing a graphic presentation of the individual student through each class and activity for each day of the program. The curriculum information was reviewed by the research assistant (coordinator) as to materials for further daily test development.

Development of Forms and Collection of Data

One aim of the CAE research was to assist the twelve teachers who were responsible for the morning classroom and afternoon club operations. The CAE staff was to help in the development of explicit measurable goals, written instructions, and measuring procedures necessary to fulfill the terminal objectives established by the Friends/Morgan project staff for the six-week summer program. This operational research procedure was to maintain a continuous objective feedback and to measure the effectiveness of the arts program in the strengthening of the specified academic subject matter goals.

Prior to the F/M project, the contracted training sessions included examination of procedures for curriculum evaluation for (1) the statement of terminal objectives, (2) the establishment of activities necessary to meet goals, and (3) criteria for measurement of goals. The teaching team, the artist specialist, and the classroom teacher were apprised of their duties in the evaluation of the curriculum. The artist was responsible for the statement of objectives and the design of activities. The classroom teacher was to serve as an arts assistant and objective observer of the activities and to evaluate their effectiveness based on the original statement of goals.

A series of data collection forms evolving from the CAE training sessions was to assist the teachers in evaluating their curriculum and to provide the CAE staff with data for academic evaluation. Hence, the daily tests on these forms were to be developed from the objectives and activities outlined by the teachers. The forms were designed by the CAE staff for the collection of pertinent curriculum information by the teaching team. (See Appendix for samples of forms.)

The Class Evaluation Sheet #1 (CES 1) was given to the teaching teams at the last teacher-training session on June 22. The teachers were asked to make whatever recommendations they felt would improve the form for their use. Changes were made and the revised form was put into operation the first day of the program, Monday, June 26 (see CES 2).

This revised Class Evaluation Sheet #2 required coordination between the arts specialist and the classroom teacher (research teacher). The artist stated the objectives of each class, the relationship of these objectives to the weekly objectives as determined by the curriculum themes, and their relationship to other ongoing classes. The research teacher would then assess the procedures and indicate the "best" activities, what to eliminate or to stress, activities not completed, ease or difficulty of activities/materials, notes on student questions, procedures for evaluation, general class notes, and student participation notes.

Difficulty developed in getting the teaching staff to specify their weekly goals and daily class objectives. Their statements continued to be vague, broad, and lacking in information. Other questions on the revised working form were frequently left blank or given only brief responses. The question, "What activities should be eliminated or stressed?" was frequently left unanswered. It appeared that some conflicting opinions developed between the artists and the research teachers in the evaluation of the activities.

To ease any discord within the teams and to improve the quality of the recorded information, a second revision of the form was made based upon suggestions made by the F/M project designer. Separate forms were prepared for both artist and research teachers. The artist had a form on which to state his objectives and activities for each day. Space was provided for his notes on evaluation. The form for the research teacher emphasized observation of activities and evaluation in terms of participation and ease of activities for the children. Questions were included to prompt recording the introduction of new concepts, vocabulary, and problem-solving tasks. Space was provided for anecdotal notes and a general account of spontaneous questions by the students.

A difficulty that persisted through the remainder of the program was the artists' reluctance to use forms. One of the art specialists stated firmly that the record-keeping was the task of the research teachers. This problem of communication of data from class to CAE was never resolved satisfactorily.

In addition to the teachers' records, data was collected by the student-interns. Of the 26 student-interns, 6 were assigned research tasks and were referred to as research interns. These 6 student-interns were each assigned to an art class and remained in the same subject area throughout the morning class period.

The research intern was to record his data on a "Class Participation Recording Sheet" (CPRS). To enhance the focus of attention, the intern was to note the class objectives and activities proposed for the day on the CPRS. With this frame of reference, he was to check attendance, make notes on student non-participation and class disruptions, indicate tasks completed, and note if photographic records were made. These photos could be used in the preparation of a 35 mm three-screen presentation. Class attendance was to be a straight-forward "yes" or "no" response. Non-participation was to be measured in 5-minute segments and varied in criteria with the different art forms. For example, participation in sports, an active physical involvement, differed from participation in drama, which could demand periods of quiet attention to the activities of the performing children. Class disruptions were defined with similar latitude. The talking that disrupted the continuity of the drama class would be completely lost in the general clamor of woodwork.

In addition to the specific class data, general data was compiled on the home room and club activities. The home room form, filled in by the research intern, was primarily an attendance sheet. The F/M secretarial staff also used it for attendance records and phone calls to absentees. General appearance and anecdotal notes were included as additional information.

The club activities records were handled in the same manner as the class records. The club leaders (the morning teachers, artists, and some personnel involved only in the club activities) stated objectives and recorded the curriculum aim on the "Class and Club Teacher Recording Form." The interns, all of whom had club assignments, recorded attendance, participation, disruptions, and general notes on separate forms for each club.

A chart was posted synthesizing the separate reports into a total picture of the individual student. His home room attendance was charted, as was his attendance in each of four classes, "Surprise Time," and afternoon club. Non-participation was recorded in multiples of five minutes, and disruptions were indicated by the number of isolated incidents. Where specific comments had been made concerning a particular student during a particular class, a small plus or minus sign was used to indicate its positive or negative nature. A staff member could refer to the data sheets for the statement content, or merely note the total configurations of the student's behavior.

Although optimum use of the data collection forms was never fully realized, they provided the only communication to the CAE staff as to the class activities. Reliance was placed in the written communication of artist, research teacher, and intern as to the development of the program themes through the arts classes.

Reviewing the statements on the forms, and recognizing the underlying concept themes, the content of the daily curriculum tests was developed.

Here is an illustration of the material resulting from the data collection procedures of the first ten days of the program. The material has been condensed somewhat, but the language of each team has been preserved as much as possible.

DATE June 26 PROJECT DAY # 1 THEME: SPATIAL RELATIONS

CLASS	OBJECTIVES/ACTIVITIES
ART	Emphasis on relationship of body parts, space between parts. Make self-portrait out of torn construction paper. To create a flexible figure out of wire.
DANCE	Exploration and understanding of spatial concepts; emphasis on up and down. Development of memory, observation, rhythm, listening. Strengthening and stretching body and making it adept at locomotor and non-locomotor skills. Awareness of different qualities of movement. Balloons--inflating, deflating, popping; children improvising the same movements.
DRAMA	Introduction of children to teachers, each other; orientation to class. Names given, siblings, age, school. Pantomime exercises: tying a knot, imaginary ball game, face washing.
MUSIC	Establish friendly relations with teachers, children, introductions by children. "Bus Song" with children pointing out parts of body.
SPORTS	Orientation to up and down, high and low, through exercises and games. Rope climbing, ball toss, Simon Says, basketball, jumping games.
WOODWORK	Observation, following directions in order to use tools. Cutting objects out of wooden squares.
TEST (SURPRISE TIME)	Orientation to "Surprise Time" format. Envelopes distributed containing name tags, pencils; children labeled envelopes, returned them. Game of "Simon Says."

DATE June 27 PROJECT DAY # 2 THEME: SPATIAL RELATIONS

CLASS	OBJECTIVES/ACTIVITIES
ART	Awareness of detail relationship of senses to parts. Continuation of construction paper faces; wire figures.

CLASS	OBJECTIVES/ACTIVITIES
DANCE	Development of spatial concepts, locomotion sequence. Used elastic to demonstrate stretching, contracting; used crepe paper strips.
DRAMA	Introduction of prepositional and directional concepts. Pantomime. Hold and pass a baby, catch and pass a parakeet. Read and acted out story "Elf and Toadstool."
MUSIC	Concepts of spatial relationships and of directions, through the medium of music. Introduction to musical notation: lines, spaces, direction, alphabets.
SPORTS	Concept of under and over, and test through games. Exercises, leap-frog, forward rolls, trampoline jumping.
WOODWORK	Cut objects out of plywood; painting them. Completion of hygrometers, observation of litmus paper change (up-down movement).
TEST (SURPRISE TIME)	Self-identity: name, age, date of birth, address. (3rd & 4th) City name.

DATE June 28 PROJECT DAY # 3 THEME: SPATIAL RELATIONS

CLASS	OBJECTIVES/ACTIVITIES
ART	Stress observation of parts of body with relation to senses (nose: smell; eyes: see). Complete paper face portrait, complete detail. Orientation of figures in space, on or under something. Complete wire figures, mount on boards, tennis courts, etc.
DANCE	Teaching spatial concepts, rhythm, low-motion sequence, memory. Jumping over, back, in, out, forwards, backwards, following directions, sequence, counting and adding to five. Balloon and elastic dances.
DRAMA	Spatial concepts. Imaginary knot-tying, throwing and catching ball. Make up story about spaceman, act out in class.
MUSIC	Relationship of music to space. Filling spaces with notes, review of musical notation. New songs; discussion of heights (taller-shorter, etc.).

CLASS	OBJECTIVES/ACTIVITIES
SPORTS	Teach concepts of high and low, under and over, odd and even. Dodge ball, ball bounce drill, under-over relay, high-low ball relay.
WOODWORK	Cutting, measuring, sawing. Following directions in making boats: top, bottom, shapes. Completion of hygrometers, making guitars, xylophones.
TEST (SURPRISE TIME)	Multiple choice exercise: select, place adhesive dot on representational of up, around, across, under, inside, on top of, out of, together, open, bottom, full, before.

DATE June 29 PROJECT DAY # 4 THEME: SPATIAL RELATIONS

CLASS	OBJECTIVES/ACTIVITIES
ART	Spatial conceptualization of self-image, what is below neck. Addition of details "under" faces: shoulders, arms, limbs, shoes, etc. Creation of space around wire human figures. Mounting figures on styrofoam; surfaces, enclosures, etc.
DANCE	Spatial concepts: high, low, in, out, stretching, jumping, running. Balloon dance, hoops, walking with feet, sitting on ground and hands, remembering sequence of steps.
DRAMA	Perception and observation of self and others. Introducing self to class, role playing. Acting out fixing breakfast, grandparents, Hecht Co. salespeople and customers. Mimic of spacemen vs. space monsters.
MUSIC	Concepts of tall, short, front, middle, back, between. Musical notation, direction. Songs. Placing each other according to height.
SPORTS	Teach concept of above and beneath, review sets, right and left through games. Pretend to be airplanes. Play kickball.
WOODWORK	Make wooden objects and paint them. Observe litmus paper and mark as to color change. Continued work on objects.

CLASS	OBJECTIVES/ACTIVITIES
TEST (SURPRISE TIME)	Multiple choice: mark the geometric figures (circles, squares, lines, triangles) indicating up, around, across, under, inside, on top of, coming out of, together, open, bottom, full, before.

DATE June 30 PROJECT DAY # 5 THEME: SPATIAL RELATIONS

CLASS	OBJECTIVES/ACTIVITIES
ART	To make something that goes over or on top of ourselves: clothes, buttons, shoes, trimming. To develop "on" the wire figures.
DRAMA	Spatial concepts, geometric shapes. Jumping dances in geometric patterns, different shapes, directions, turning left and right giving hand signals. Different qualities of movement: elephant/rabbit.
DRAMA	Dramatic problem-solving, planning together for little playlets. Use of spatial concepts--up and down, around, across--in plays.
MUSIC	Character representation through use of musical instruments, sound each instrument makes. Listening to "Peter and the Wolf," reviewing songs.
SPORTS	Teach concept of before and after, review sets, left and right, through games. Discuss numbers in relation to each other, discuss what is before and after.
WOODWORK	Making wooden objects, familiarity with geometric shapes, use of tools, measuring. Continued work on boats, guitars, xylophones.
TEST (SURPRISE TIME)	Constructing the total response to directions: Draw a circle around the box, place an X inside the box, etc. Information tested: up, around, across, under, inside, on top of, comes out of, together, open, bottom, full, before. In addition, for groups 3 and 4: North, South, East, West, full, near.

DATE July 5 PROJECT DAY # 6 THEME: SPATIAL RELATIONS

CLASS	OBJECTIVES/ACTIVITIES
ART	Vocabulary building of spatial concepts. Continuation of paper portrait until child says "I'm finished." New project making a house using a huge box. Cutting doors and windows to go "into." Continued work on wire figures, stands, bases, and accessories.
DANCE	Development of spatial concepts, coordination, imagination. Using a box to leap over, imagining a space and jumping it.
DRAMA	Moving from problem-solving to developing a story. Nigerian story "How the Rooster Got His Feathers." Playlet developed, acted out from story.
MUSIC	Development of spatial concepts. Reviewed songs taught; continued study of "Peter and the Wolf," discussing instruments, characters.
SPORTS	Teach concepts of big and small, review right and left, and sets through games and exercises. Discuss big, small things in gym, at home, hop in sacks.
WOODWORK	Concept of distance, measurement in space. Making paper airplanes and measuring distance of flight. Continuing construction of guitars, measuring xylophone pieces for graduated sound.
TEST (SURPRISE TIME)	Constructing a response, testing the knowledge of down, within, across, above, outside, below, into, apart, closed, full, empty, after.

DATE July 6 PROJECT DAY # 7 THEME: SPATIAL RELATIONS

CLASS	OBJECTIVES/ACTIVITIES
ART	Work on house from cardboard box, putting decorations "on," accessories "in." Putting bricks on with sponges, writing stories about people they have made. Continuation of wire figures, putting accessories "on" body, putting body "on" or "in" something.

CLASS	OBJECTIVES/ACTIVITIES
DANCE	Spatial concepts, rhythm, locomotion sequence, memory. Leaping over boxes and without boxes; walking while sitting, balloon dance; stretching with elastic -- up, down, back; skipping forward, backward.
DRAMA	Structuring a fairy tale "Emperor's New Clothes" into a play in proper sequence.
MUSIC	Reviewed musical notation, instrumentation of "Peter and the Wolf." Studied directions--north, south, east, west; tempo--fast, slow; formation of arch--moving inside, outside, around, under. Learned "Thumbelina."
SPORTS	Teach the concept of long and short, and test through games. Spell words; exercises, bounce on trampoline.
WOODWORK	Construction of objects, relationship to spatial theme. Airplane and boat building; transmittal of sound by can telephone; construction of doll houses.
TEST (SURPRISE TIME)	Puzzle test of spatial concepts: right, left, up, down, across.

DATE July 7 PROJECT DAY # 8 THEME: SPATIAL RELATIONS

CLASS	OBJECTIVES/ACTIVITIES
ART	Furnish the "inside" of the house using simple measure to fit furnishings in door and fit various items in specific spaces. Discussion of what is needed to "fix a house up" inside.
DANCE	Spatial concepts, rhythm, locomotion, sequence, memory. Balloon dance, some children beating drum, others performing; skipping in and out while beating drum; increasing, decreasing number of children; bus drivers -- left, right turns; making statues. Leaping to tone muscles, stretch legs.
DRAMA	Structuring a fairy tale into a play in proper sequence; listing and choosing of cast; playing of parts. "Emperor's New Clothes," "Gingerbread Man," and "Three Little Pigs."
MUSIC	Reviewing musical notation; learning rhythm on notes, beat. Introduction of time signatures.

CLASS	OBJECTIVES/ACTIVITIES
SPORTS	Teaching concepts of inside and outside, and testing through games. Inside and outside circle game, odd and even number game. Discussion and practice of sets using 7th person to demonstrate outside.
WOODWORK	Conceiving spatial relations. Construction of objects that contain things--boats, planes, trains.
TEST (SURPRISE TIME)	Multiple choice pre-test on sizes: large, long, tiny, shortest, more, biggest, greater, narrow, nearest, tall.

DATE July 10 PROJECT DAY # 9 THEME: SPATIAL RELATIONS

CLASS	OBJECTIVES/ACTIVITIES
ART	To make two houses demonstrating space and measure, texture, new concepts and vocabulary: shingles, design, materials, lines, grain, view inside, outside, back, front. To finish mounting wire figures and prepare for exhibit. To paint "big" to all the edges of paper. Children went outside, pretended they were crayons and "drew" with their bodies what they would like to be (grasshopper, bunny, butterfly etc.) Came inside and translated to huge manila sheets.
DANCE	Spatial concepts, rhythm, locomotion, sequence, memory. Statues on a box; stopping at STOP sign; moving feet around penny, moving all around penny in different ways. Sequence dance involving pennies. Pretending to be a turtle, a monkey, "swinging" from vine to vine.
DRAMA	Introduction to sizes. Discussion of sizes of people, voices, acting out sizes in life--department store, zoo, grocery store, church. "Jack and the Beanstalk" discussed.
MUSIC	Reviewed songs having sequential concepts. Children formed familiar shapes (squares, rectangles, circles).
SPORTS	Discussion of wide and narrow, reviewing odd and even. Jack-O-Lantern game (teaching cardinal and ordinal numbers); circle ball passing games stressing wide and narrow.

CLASS	OBJECTIVES/ACTIVITIES
WOODWORK	Concept of space, introduction of size concepts. Beginning city of houses and skyscrapers.
TEST (SURPRISE TIME)	Construct the response to small, short, huge, taller, less than, near, smaller, narrow, near, small.

DATE July 11 PROJECT DAY # 10 THEME: SPATIAL RELATIONS

CLASS	OBJECTIVES/ACTIVITIES
ART	Concept of size developed through design of wallpaper, curtains, filling manila papers with pictures; construction of paper dolls.
DANCE	Spatial, size concepts, rhythm, locomotion, memory. Working with plastic sheets; leaping through hoops; using pennies with hands, feet.
DRAMA	Building a scene based on words of size contrast. Breaking into groups and acting: tall and short, big and small, wide and narrow, gigantic and minuscule. Examples included ice cream store, King Kong and airplanes, Desert Patrol, loose monster.
MUSIC	Reviewing songs for sequential concepts. Introduction to size. Reviewing sets of solo, duet, trio, etc., triangles, squares.
SPORTS	Teach concepts of more and less, test through play. Numbers relay, Squirrel in the Cage (children are assigned numbers, move into groups). Discussion of fast and slow. Running around track--fast and slow pace.
WOODWORK	Concept of space relations and measurement. Determining yards, feet, inches, to finish houses.
TEST (SURPRISE TIME)	Lotto board recognition game of large and small alphabet, numbers, and geometric shapes.

Development of Daily Tests for the Children

In addition to the series of standardized tests (Primary Mental Abilities) administered prior to the Friends/Morgan program and at its completion, a daily testing program was carried out during the project. The CAE staff tested the children each day during a 15-minute period to fulfill one of CAE's objectives, developing operational procedures which could measure the change in educational behaviors of the children. The teaching staff did not present criteria for the measurement of the terminal goals of the children's artistic achievement. The daily testing period was used, therefore, to measure the children's accomplishment within the originally stated curriculum as developed by the F/M program designer.

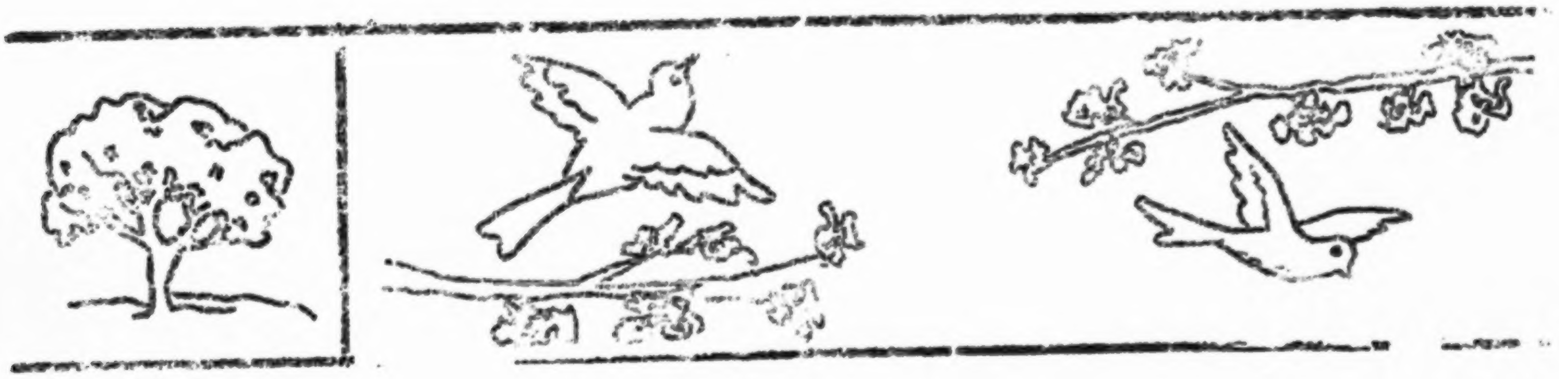
A major part of the curriculum was devoted to what the F/M program designer considered "Concept Themes" which were to be taught through the different art forms in the morning program. The following schedule was used in presenting the concept themes:

Weeks I and II: Spatial Relations
Week III: Size
Week IV: Shapes and Structures
Week V: Sequences of Time and Speed
Week VI: Measurement

The curriculum outline included the concept themes, additional tasks specified for each of the art forms, and suggestions for actual activities. The curriculum established the guidelines; the artist teachers delineated the specificity. The daily activities in each class were determined by the artist teachers. The subject matter of the daily tests was drawn primarily from the program designer's curriculum schedule and from the activity goals occasionally stated by the artist teachers.

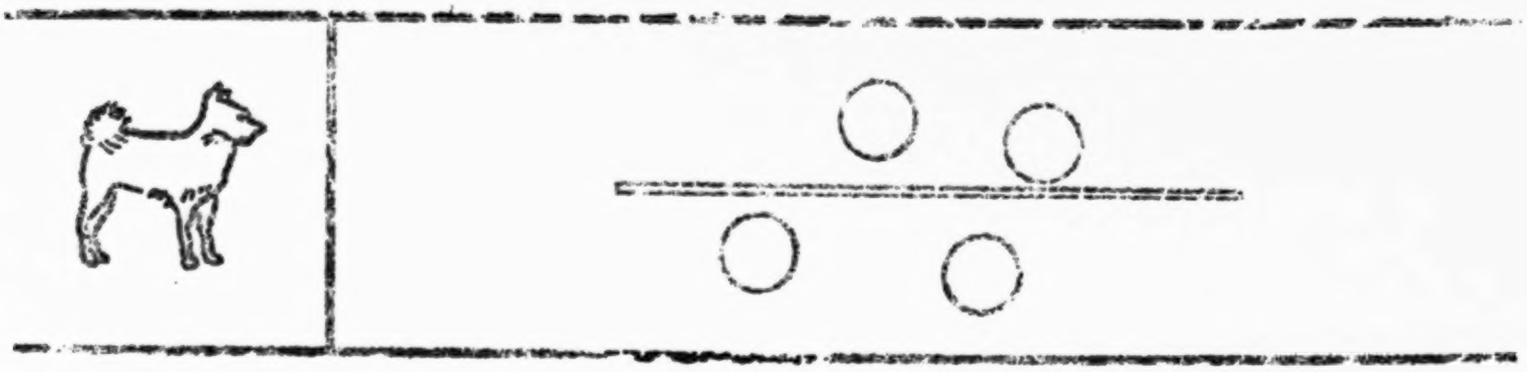
The style of the tests was evolved by the CAE staff during the progress of the program. So as to add no outside teaching influences to the program, it was agreed that the tests were to be paper-and-pencil tests that were not self-correcting.

The PMA test format was elected as a tentative model. The first test required the child to choose from a pair of representational pictures, one of which matched the verbal cue read aloud by the tester. The following is an example of a visual used:



The instruction which referred to this item asked the children to mark, in the space next to the dog, the bird that was "under the branch." The concepts under and above were part of the curriculum material of the concept theme, "Spatial Relations," taught in Weeks I and II of the morning program. The children indicated by their choices their comprehension of the graphic meaning of the concept or word.

Grading of the first set of tests quickly ascertained the children's competence in recognizing the representational pictures of such concepts as "above" and "below." Therefore, another probe style was designed to present choices of abstract pictures indicating spatial relationship or position. In this form of the test, for example, the children were asked to indicate which were the circles under the line.



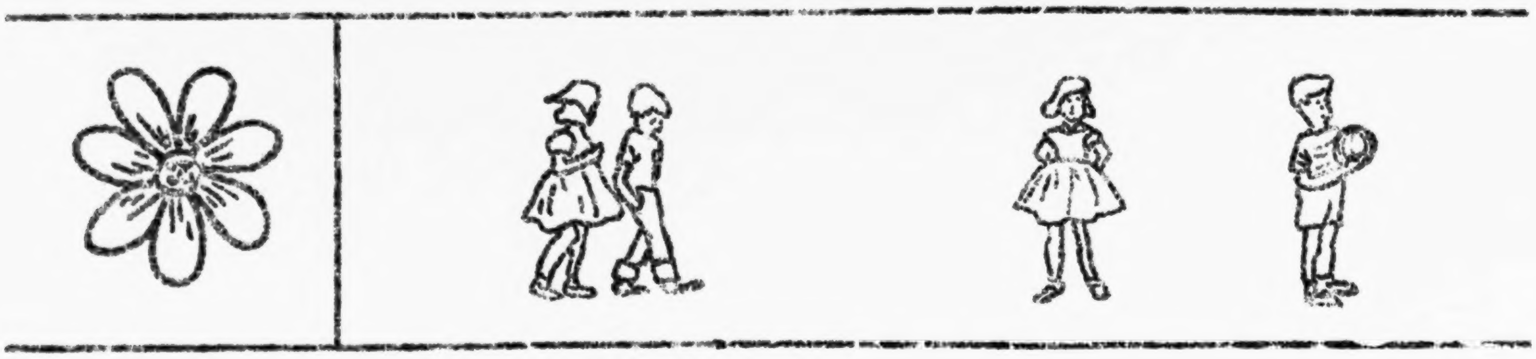
A very high level of correct choices was also made by the children on these abstract symbolic choices. This was contrary to the hypotheses of the program designer and to the expectations of the CAE staff. Therefore, a third test was designed. The children were presented with a printed figure on the test form and asked to construct another figure in relation to it. For example, one of the items was a red line. The children were asked to "draw a circle under the line."

Test grades indicated different levels of competence among the children.

The first two tests, choosing the correct graphic, required that the child recognize the meaning of the word. This visual discrimination was to be made with a yes/no decision. However, the third test, the construct test, asked for more complex behavior. Admittedly, this demand for construction was closer to the general writing behaviors demanded in school. Through the following weeks of the project both recognition and construct styles of tests were used to test each of the concept themes.

The vocabulary required by the weekly concept theme and determined by the curriculum guide was the subject of each week's testing. To construct a daily test the staff sketched out a number of visual presentations appropriate to each word on the list of verbal cues. The set of instructions to be read aloud by the tester was devised by a staff member and then reviewed by another staff member to rule out ambiguity and confusing verbalization.

The *Primary Mental Abilities Test* (PMA) which had been used as a pretest instrument was also the tentative model for the visual design of the first daily tests. The test format employed a column of pictures on the left-hand side of the page. These were to be used as place markers to help the children keep the correct place as the directions were read aloud. They were used in the following manner: (Test item from daily test, Wednesday, June 28, 1967) "Find the flower. In the box next to it, place a dot on the children who are *together*."



Each page was divided into six spaces and a small box on the left of each space was filled by a simple picture, the place-marker reference.

All visual content for tests were prepared by CAE staff designers. The basic format with the place-marker pictures was reproduced in volume, using a Gestefax machine to cut stencils and a mimeograph machine to reproduce copies. The visual designs which made up the test choices or cues for each daily test were drawn up on this format and reproduced by the CAE staff in the required quantity.

Because this format provided a convenient method for presenting the graphic choices or construct cues of the themes for those weeks (spatial relations and size), it was used extensively for the first three weeks.

In addition to the PMA format, other forms were devised for variety. A grid of spaces, like a lotto board, consisting of nine squares, was drawn up. The center square was a "free" square, not to be filled in, and the remaining eight squares were filled with symbols (numbers, letters, abstract forms) to be marked when the appropriate verbal cue was read aloud by the tester. Three different forms of the lotto board were drawn up with different location of symbols and some variation of symbol content on each. These were distributed randomly in each class set of manila test envelopes. This form was devised both to introduce variety for interest's sake and to stop copying of neighbor's answers.

The concept themes for Weeks IV (Shapes and Structures), V (Sequences of Time and Speed), and VI (Measurement) were tested on the "recognition and identification of form," or "construct the required response form" also, but the test format varied.

After the reproduction of the tests, the procedure for each day began with filling the children's manila envelopes for that day's test or game. Envelopes, each with a child's name, were checked for functional condition of the colored pencils or other marking devices provided (adhesive dots, lead pencils). They were then sorted by classes and placed in a series of Pendaflex files. Each file was labeled by the class art form preceding "surprise time," since the children remained in those classrooms for the testing period. Clipboards were prepared for each of the testers with extra test forms, a manila envelope containing extra pencils or marking materials, and a copy of the test instructions to be read aloud that day. Just before the testing period the test administrators picked up their materials--the tester's clipboard and the envelopes of the children to be tested. "Surprise time" began at 10:35.

When the test administrator took charge of the class, the artist teacher, classroom teacher, and art intern left for a break. Usually, two interns assisted with the test administration. The testing procedures were routine. The children were asked to sit down, and each was given his envelope. Instructions usually began, "Remove your pencil and paper from your envelope and place them on the floor (or table) in front of you." When they had completed the test, they replaced their test form and pencil in their envelope, returned them to the test administrator, and received a glass of juice.

Testing this population in this situation had many intrinsic difficulties. The informal nature of the testing spaces, particularly those without tables or desks, made formal seating arrangements and attitudes difficult to achieve. Many of the classes had to shift from physically active, "doing" behaviors to a seated, more academic "listen and respond with your pencil" behavior. Many children attempted to avoid the challenge of participating. Originally, physical hyperactivity, lack of sustained listening behavior, inability or generalized tendency not to respond to specific demands were characteristic of many of the children. (These were typical of those behaviors that generally are associated with low achievement in school.)

Despite the difficulties of the testing atmosphere, most of the hyperactive children gradually joined their classmates in the scheduled activity and participated in a cooperative manner. By the end of the program these disruptive behaviors had diminished to a point where they did not interfere with the testing.

The CAE staff periodically explained to the children that there should be no concern for "passing" or "failing" these exercises because the research team merely wanted to know what they knew. They were often told that there was to be no grade, nor any connection with school grades. Despite the frequent assurances, copying was a persistent problem, partly as a consequence of the informal seating arrangements. Subsequent changes were made in the testing arrangements. Thirty first-grade children were originally tested in the music room, usually sitting on the floor. It was decided to have them return to their home rooms, where they could be tested in two groups, working at tables and chairs.

Through the use of a folding wall, the drama group of 30 second-graders was divided into two groups. The visual separation of some of the more active children in one group from their counterparts in the other group proved quite helpful in maintaining a more suitable test environment.

From one tester's point of view, "Surprise Time" added to the value of the project for the students beyond the designed "pleasure of participation in the arts." For whatever reason, from whatever shaping experiences, some of the children tried to avoid the challenge of the test situation from the beginning. Initially, some tried to leave, and some hid in the halls; the trips to the bathroom were numerous, the need repetitive; there was some flat refusal to try; a very common response was to claim the question was not heard. During the six weeks of repeated testing, these behaviors diminished markedly. The positive aspects of their program involvement combined with acclimation to testing demands and procedures may have been the combined cause. Certainly these children were not "test shy" at the end of six weeks.

Preparation of the Slide Presentation

Throughout the planning and execution of the Friends/Morgan Demonstration Project a visual record was maintained of pertinent activities. In a period from May to August, 1967, over 1,000 35mm color slides, approximately 300 black and white Polaroid pictures, and 1,200 ft. of 8 mm black and white sound film were developed.

Photographs were taken of the pre-program test sessions at Morgan Elementary School, the Training Sessions at the National Training School for Boys, the Institute for Behavioral Research, and Sidwell-Friends Middle School. A record was made of the development of the space at Sidwell-Friends and of the activities related to the operation of the program.

Both 35 mm slides and Polaroid photographs were taken almost daily throughout the demonstration project. These recorded the children's finished products as well as the activities in each of the classes and clubs. The Polaroid pictures were given to the children as mementos of their work and served as an additional reinforcer for completing a task.

The movie footage was used primarily to portray the art classes in which the movement of the children was the critical aspect of the art form, and dance and creative sports received most of their exposure through that medium.

The purpose of producing a slide presentation was not only to provide a general orientation to the project, but also to develop a program for teaching the rationale and procedures of the demonstration and research projects. To enhance its flexibility and ease of use, the preparation under a 3-screen format was abandoned for the more universal single-screen approach. The content is such that it is applicable to a broad range of audiences.

A single, 80-slide tray had been prepared in the fall of 1967 for use by Mr. John Arnold in conjunction with talks to members of the Sidwell community and to its alumni, as a general orientation to the summer program.

The final presentation was built on that group of slides, expanding to more than 40 minutes of pictures and audio script. A review of the slides and the script with Mr. Junius Eddy, Specialist, Arts for the Disadvantaged, Arts and Humanities Program, Office of Education, Mr. John Arnold, Director, Sidwell-Friends School, Mrs. Sally Smith, Project Designer and Curriculum Director, and Mr. Charles S. Blinderman, Program Officer, Division of Education and Public Programs, National Endowment for the Humanities, resulted in suggestions and editing of the show to 210 slides in three trays, coordinated with a taped audio portion.

The 8 mm sound movie film footage has been given to Mr. Arnold for his use, along with approximately 400 of the 35 mm color slides.

FINDINGS AND ANALYSIS

To achieve the proposed objectives of the CAE research, a variety of data were recorded before, during, and after the summer project. From this data, selections have been made for presentation which are consistant with the CAE project objectives and which exemplify pertinent aspects of the Friends/Morgan summer project. Four major types of information are included:

(1) scores from all administrations of the PMA Test of both children in the summer program and a comparison group;

(2) data regarding the children's active participation during the summer program;

(3) data regarding daily "Surprise Time" tests administered during the summer program; and

(4) scores from the pre- and post-project testing of student-intern skills.

Definition of Students and Test Administrations

Only those children who completed 10 or more days in the summer project have been defined as "students." One hundred and ten children were included as summer program students by this criteria. Ninety-three of these students were children from the Morgan School Community, an inner-city school in a socio-economically depressed area. Seventeen children were from the predominantly white Sidwell Friends private school. Their families reside in both urban and suburban areas. Similarly, the inclusion of test scores for the analysis of data has been restricted to scores of children present for 10 or more days in the program.

The instrument used to measure changes in educational behaviors was the 1962 revision of Thurstone's Primary Mental Abilities Test (PMA) for Grades K-1 and 2-4. The Experimental group comprises the program participants from the Morgan Community who completed each of the four test administrations. The Comparison group comprises the children drawn randomly from the same Morgan School population, but who did not participate in the program.

The PMA was administered to both groups, Experimental and Comparison, on the following schedule:

Experimental Group	Comparison Group
June 13, 1967	June 13, 1967
August 8, 1967	September 23, 1967
December 13, 1967	December 13, 1967
March 13, 1968	March 13, 1968

The data in this report deal only with those children who completed all of the four tests. Although the data reports on a portion of the original population, their behavior is representative of the behavior of the larger groups from which they were selected; i.e., only 31 of the reported Experimental group completed all four tests in the series, but 77 completed Test 1, 80 completed Test 2, 54 completed Test 3, and 54 completed Test 4. Of the Comparison group, 41 completed Tests 1 and 2, 31 completed Test 3, and 29 completed Test 4; twenty-nine completed all 4 tests. The difference between the average scores of the reported groups and the other test subjects was not statistically significant.

Fifteen children of the Experimental group and fourteen children of the Comparison group were in kindergarten, junior-primary, or first grade at the time of the June testing and were tested with the K-1 form of the PMA. These are referred to as the younger children. Sixteen children of the Experimental group and fifteen children of the Comparison group were in second or third grade at the time of the June testing and were tested with the 2-4 form of the PMA. They are referred to as the older children.

Description of PMA Test Instrument

One of the goals of the Friends/Morgan summer project was to strengthen the perceptual and conceptual foundations of reading and arithmetic skills. The degree to which the summer project achieved this goal was the principal topic of investigation for the CAE project. The 1962 revision of the Thurstone Primary Mental Abilities Test (PMA) for grades K-1 and 2-4 was selected as an appropriate instrument to record changes in reading and arithmetic skills. The PMA format appeared to assess perceptual strength through the Perceptual Speed and Spatial Relations sub-tests and the applications of that foundation for academic skill by the Verbal Meaning and Number Facility sub-tests. The Examiner's Manual for the Primary Mental Abilities Test describes the four sub-test components of the PMA K-1 and 2-4 in the following manner.

> "V-Verbal Meaning: The ability to understand ideas expressed in words. In the later school years this is the most important single index of a child's potential for handling academic tasks. At the lower levels it is tested by a vocabulary test in picture form.
>
> "P-Perceptual Speed: The ability to recognize likenesses and differences between objects or symbols quickly and accurately. This ability is important in acquiring reading skills, but tends to plateau at a relatively early age. For this reason it is included only with the three batteries designed for the lower grades.
>
> "N-Number Facility: The ability to work with numbers, to handle simple quantitative problems rapidly and accurately, and to understand and recognize quantitative differences. At the lower grade levels the N scores are determined by a pictorial test that requires no reading. Addition problems are also used.
>
> "S-Spatial Relations: The ability to visualize objects and figures rotated in space and the relations between them. The test measuring this ability appears in every level of the PMA and is important throughout the school years."

Each of these 4 sub-tests provides a "Part Score" which may then be converted into a "Mental Age Score" for each specific ability component. A "Total Score" is developed by adding the 4 sub-test scores together. This "Total Score" may then be converted into a "Mental Age Score" for the entire battery. Findings of this report are presented both in terms of Mental Age Scores for each sub-test and Mental Age Scores for the total battery.

Additionally, when the score changes between test administrations are presented, they are expressed in decimal fractions of a year's change in mental age (e.g., three-quarters of a year's increase would be expressed as .75 and the loss of one-third of a year expressed as -.33). These observed mental age changes are compared to expected (or, projected) change for the time intervening between test administrations (e.g., a six-month interval between test administrations would result in an expected, or projected, change of .50 year).

Mental Age Change on PMA: Total Group Means

The most general exposition of PMA test scores is a presentation of the total group means. Although this presentation only provides the composit (K-1 and 2-4) scores, it is useful for inspection as it describes the mean scores of the total Experimental group and relates them to the mean scores of the total Comparison group. This data is presented in the table below. As in all succeeding tables, the data presented is observed PMA mental age change, related to expected change and interval between test administrations.

For each "Observed Change" score, a standard deviation (SD) is presented to indicate dispersion from the mean. In order to measure the statistical significance of difference of means, the application of "t" test was made. Since there were two different groups of children for whom the continuity of change in mental age scores was studied, the "t" test was applied to the means of differences in observed change in mental age scores. For statistical accuracy, the application of "t" test was a "two-tailed" measurement at .05 level of significance.

EXPERIMENTAL GROUP (N=31)				COMPARISON GROUP (N=29)				Value of "t" test, .05 level significance, at 58 df.
Test Period	Expected Change	Observed Change	SD	Test Period	Expected Change	Observed Change	SD	
June to Aug.	.17	.19	.51	June to Sept.	.27	.26	.44	.565
Aug. to Dec.	.33	.46	.37	Sept. to Dec.	.23	.59	.32	1.419
Dec. to March	.25	.07	.36	Dec. to March	.25	.05	.36	.021
June to March	.75	.72	.51	June to March	.75	.93	.44	1.673

* Indicates that change is significant at .05 level, with 58 degrees of freedom.
E Indicates in favor of Experimental grp., C Indicates in favor of Comparison grp.

Fig. 1 Mean Mental Age Change in Total Score: PMA K-1 plus 2-4

The most obvious conclusions that can be drawn from the mean change data presented in Figure 1 are that, over the course of the summer, both groups of children increased their mean scores at approximately the rate expected and that the Comparison group accomplished this without the benefit of a constructed summertime activity. Secondarily, the total Comparison group appears to have made larger gains over the nine month term of the study. Although the August to December mean score changes also indicate greater overall increases by the Comparison group, there are no statistically significant differences for any of the mean scores gathered for the total group, total score data of the PMA administration.

Mental Age Change on PMA: K-1 Group (Mean)

EXPERIMENTAL GROUP (N=15)				COMPARISON GROUP (N=14)				Value of "t" test, .05 level significance, at 27 df.
Test Period	Expected Change	Observed Change	SD	Test Period	Expected Change	Observed Change	SD	
June to Aug.	.17	.23	.62	June to Sept.	.27	.05	.45	.867
Aug. to Dec.	.33	.48	.39	Sept. to Dec.	.23	.70	.38	1.474
Dec. to March	.25	.02	.40	Dec. to March	.25	0	.91	.077
June to March	.75	.77	.48	June to March	.75	.75	.42	.012

* Indicates that change is significant at .05 level, with 27 degrees of freedom.
E Indicates in favor of Experimental grp., C indicates in favor of Comparison grp.

Fig. 2 Mean Mental Age Change in Total Scores: PMA K-1

The total score changes between June and March are essentially equal for both groups, Experimental and Comparison, and are at the average expected level of increase that the norms of the PMA projects for that period.

The Experimental group scored well immediately following the program, but made only nominal increases between December and March. The Comparison group made less than expected increases following their unstructured summer activities as well as during the last test period.

The Verbal sub-test is the one academics-related sub-test in which the Experimental K-1 group surpassed the Comparison group performance. The contrast between groups is overshadowed by the fact that the Experimental group achieved only two-thirds of the total increase of the PMA's projected norm expected in a nine-month period. The amount of increase for the Experimental group following the summer program was almost exactly the test norm of expected increase, but somewhat below expectation the next two test periods. The Comparison group exhibited a decrease in Verbal skills during the summer, a finding of no great surprise. The sharp increase in scores following their return to school was not so readily assumed. In spite of these gains, however, the Comparison group increased only one-half of the amount the test norms projected for the nine month period evaluated here.

EXPERIMENTAL GROUP (N=15)				COMPARISON GROUP (N=14)				Value of "t" test, .05 level significance, at 27 df.
Test Period	Expected Change	Observed Change	SD	Test Period	Expected Change	Observed Change	SD	
June to Aug.	.17	.16	.66	June to Sept.	.27	-.02	.54	.783
Aug. to Dec.	.33	.30	.45	Sept. to Dec.	.23	.32	.52	.106
Dec. to March	.25	.10	.70	Dec. to March	.25	.08	.38	.093
June to March	.75	.55	.63	June to March	.75	.38	.47	.798

* Indicates that change is significant at .05 level, with 27 degrees of freedom.
E Indicates in favor of Experimental grp., C indicates in favor of Comparison grp.

Fig. 3 Mean Mental age change in Verbal Scores: PMA K-1

Between June and March, the performance of the Experimental group exceeded that of the Comparison group on the Perceptual Speed sub-test, and both groups greatly exceeded the expected increase. The Experimental group seemed to have benefited from the summer project as indicated by the post-program testing in August. The mean change of the Comparison group decreased approximately 300% relative to expected gain during the June-September period. This radical decrease in mean change, coupled with the observed positive change in Experimental group score, caused the difference which was found to be statistically significant. These rates of change in Perceptual Speed altered their patterns during the second test period. The observed change in Comparison group means during this period was both positive and statistically significant. During the final test period, December through March, the increase of the Experimental group mean was .21 above the expected change; the Comparison group exceeded the expected increase by only .06 year.

EXPERIMENTAL GROUP (N=15)				COMPARISON GROUP (N=14)				Value of "t" test, .05 level significance, at 27 df.
Test Period	Expected Change	Observed Change	SD	Test Period	Expected Change	Observed Change	SD	
June to Aug.	.17	.74	1.36	June to Sept.	.27	-.56	1.15	2.708*^{E}
Aug. to Dec.	.33	.45	1.21	Sept. to Dec.	.23	1.73	1.26	2.723*^{C}
Dec. to March	.25	.46	1.24	Dec. to March	.25	.31	.46	.361
June to March	.75	1.66	1.14	June to March	.75	1.47	1.04	.452

* Indicates that change is significant at .05 level, with 27 degrees of freedom.
^{E} Indicates in favor of Experimental grp., ^{C} indicates in favor of Comparison grp.

Fig. 4 Mean Mental Age Change in Perceptual Speed Scores: PMA K-1

Number Facility, the second of the academics-related sub-tests of the PMA, yielded a contrasting picture for the two groups of children. At the end of the summer program, the Experimental group had made gains on the Number Facility subtest of .10 year less than the expected amount. However, the Comparison group exceeded the expected change by .48 year during this first test period without a formal design of activities to encourage the increase. The difference of these two means was found to be statistically significant. After re-entry into school, this pattern was reversed: the Experimental group increasing rapidly and the Comparison group doing less well than expected. The difference in these two means was also found to be statistically significant, in this case, favoring the experimental group. Between the last two testing sessions, the Comparison group made no measurable change and the Experimental group decreased .24 year. The change in means over the entire study period indicated a slightly better than expected increase by the Comparison group and about two-thirds the expected increase by the Experimental group, but the difference was not statistically significant.

EXPERIMENTAL GROUP (N=15)				COMPARISON GROUP (N=14)				Value of "t" test, .05 level significance, at 27 df.
Test Period	Expected Change	Observed Change	SD	Test Period	Expected Change	Observed Change	SD	
June to Aug.	.17	.07	.71	June to Sept.	.27	.75	.79	2.344*^{C}
Aug. to Dec.	.33	.72	.49	Sept. to Dec.	.23	.12	.52	3.077*^{E}
Dec. to March	.25	-.24	.68	Dec. to March	.25	0	.59	.960
June to March	.75	.54	.72	June to March	.75	.87	.66	1.235

* Indicates that change is significant at .05 level, with 27 degrees of freedom.
^{E} Indicates in favor of Experimental grp., ^{C} indicates in favor of Comparison grp.

Fig. 5 Mean Mental Age Change in Number Facility Scores: PMA K-1

EXPERIMENTAL GROUP (N=15)				COMPARISON GROUP (N=14)				Value of "t" test, .05 level significance, at 27 df.
Test Period	Expected Change	Observed Change	SD	Test Period	Expected Change	Observed Change	SD	
June to Aug.	.17	.22	.96	June to Sept.	.27	-.80	.52	1.020
Aug. to Dec.	.33	.49	.73	Sept. to Dec.	.23	.87	.59	1.490
Dec. to March	.25	-.20	.74	Dec. to March	.25	-.25	.71	.185
June to March	.75	.51	1.14	June to March	.75	.54	.69	.083

* Indicates that change is significant at .05 level, with 27 degrees of freedom.
E Indicates in favor of Experimental grp., C indicates in favor of Comparison grp.

Fig. 6 Mean Mental Age Change in Spatial Relations Scores: PMA K-1

The June-March changes for the two groups on the Spatial Relations subtest were practically the same: 5 months increase in 9 months. However, the intervening test results were different. The Experimental group did well on the post-program test, especially compared to the decreasing scores of the Comparison group. In December, the Experimental group increase was greater than expected, but the Comparison group increased more than three times their expected rate. Unexpectedly, in March, both groups' response to the instrument showed a decrease.

Mental Age Change on PMA: 2-4 Group (Mean)

EXPERIMENTAL GROUP (N=16)				COMPARISON GROUP (N=15)				Value of "t" test, .05 level significance, at 29 df.
Test Period	Expected Change	Observed Change	SD	Test Period	Expected Change	Observed Change	SD	
June to Aug.	.17	.12	.39	June to Sept.	.27	.46	.31	2.615*C
Aug. to Dec.	.33	.45	.36	Sept. to Dec.	.23	.48	.27	.025
Dec. to March	.25	.11	.32	Dec. to March	.25	.17	1.77	.001
June to March	.75	.67	.54	June to March	.75	1.11	.39	2.486*C

* Indicates that change is significant at .05 level, with 29 degrees of freedom.
E Indicates in favor of Experimental grp., C indicates in favor of Comparison grp.

Fig. 7 Mean Mental Age Change in Total Scores: PMA 2-4

The total score changes between June and March are much greater for the comparison group than for the Experimental group. The difference between these means is statistically significant and extremely important as it shows that the older Comparison children showed higher and more consistant improvement that did the children from the Experimental group in the same age range. This statistically significant difference reflects the less than expected increases between June and August and between December and March for the Experimental group. Alternately, the Comparison group exceeded the norms for expected increases in all but the December to March test period. The difference in means for the first test period was also found to be statistically significant, in favor of the Comparison group.

EXPERIMENTAL GROUP (N=16)				COMPARISON GROUP (N=15)				Value of "t" test, .05 level significance, at 29 df.
Test Period	Expected Change	Observed Change	SD	Test Period	Expected Change	Observed Change	SD	
June to Aug.	.17	.02	.43	June to Sept.	.27	.26	.51	1.364
Aug. to Dec.	.33	.51	.36	Sept. to Dec.	.23	.33	.54	1.053
Dec. to March	.25	.21	.31	Dec. to March	.25	.34	.47	.872
June to March	.75	.74	.41	June to March	.75	.93	.52	1.086

* Indicates that change is significant at .05 level, with 29 degrees of freedom.
E Indicates in favor of Experimental grp., C indicates in favor of Comparison grp.

Fig. 8 Mean Mental Age Change in Verbal Scores: PMA 2-4

The Experimental group completed the June to March period reaching the expected level of increases. In the same period, the Comparison group exceeded expectation by the equivalent of two months. The greatest disparity in performance occurred following the demonstration project. The increase in Verbal Meaning score by the Experimental group was considerably less than expected, and also less than the Comparison group's increase. The greatest proportion of change from the Experimental group occurred following the start of school; the performance of the Comparison group exceeded the expected level on both succeeding test periods.

The Experimental group displayed a decrease in Perceptual Speed scores immediately following the summer program; in contrast, the scores of the Comparison group exceeded the expected increase. Both groups performed well in the December test, and both made less than expected changes in March, with the Comparison group testing below their previous level. While both groups exceeded the expected June to March increase, the Comparison group excelled in this sub-test.

EXPERIMENTAL GROUP (N= 16)				COMPARISON GROUP (N=15)				Value of "t" test, .05 level significance, at 29 df.
Test Period	Expected Change	Observed Change	SD	Test Period	Expected Change	Observed Change	SD	
June to Aug.	.17	-.05	1.30	June to Sept.	.27	.46	.86	1.253
Aug. to Dec.	.33	.90	1.29	Sept. to Dec.	.23	1.01	.84	.275
Dec. to March	.25	.03	.82	Dec. to March	.25	-.09	.92	.185
June to March	.75	.88	1.85	June to March	.75	1.38	1.00	.914

* Indicates that change is significant at .05 level, with 29 degrees of freedom.
E Indicates in favor of Experimental grp., C indicates in favor of Comparison grp.

Fig. 9 Mean Mental Age Change in Perceptual Speed Scores: PMA 2-4

The Number Facility sub-test produced less than expected increases for both groups during the June to March period. The Experimental group made greater than expected gains during the period following their return to school. These gains were reduced by the decreases in scores resulting from the post-program test and from the final test of the series.

The Comparison group had made a slight increase during the summer, considerably less than expected, but their performance was better than the Experimental group's, whose scores decreased. Their performance on the next two test sessions approximates the expected increase.

EXPERIMENTAL GROUP (N=16)				COMPARISON GROUP (N=15)				Value of "t" test, .05 level significance, at 29 df.
Test Period	Expected Change	Observed Change	SD	Test Period	Expected Change	Observed Change	SD	
June to Aug.	.17	-.09	.39	June to Sept.	.27	.03	.36	.923
Aug. to Dec.	.33	.52	.50	Sept. to Dec.	.23	.26	.39	1.769
Dec. to March	.25	-.04	.51	Dec. to March	.25	.24	.44	1.591
June to March	.75	.40	.46	June to March	.75	.53	.47	.765

* Indicates that change is significant at .05 level, with 29 degrees of freedom.
E Indicates in favor of Experimental grp., C indicates in favor of Comparison grp.

Fig. 10 Mean Mental Age Change in Number Facility Scores: PMA 2-4

EXPERIMENTAL GROUP (N=16)				COMPARISON GROUP (N=15)				Value of "t" test, .05 level significance, at 29 df.
Test Period	Expected Change	Observed Change	SD	Test Period	Expected Change	Observed Change	SD	
June to Aug.	.17	.53	.95	June to Sept.	.27	1.10	.84	1.712
Aug. to Dec.	.33	-.10	.97	Sept. to Dec.	.23	.36	.69	2.421*^{C}
Dec. to March	.25	.22	.84	Dec. to March	.25	.17	.77	.167
June to March	.75	.65	1.14	June to March	.75	1.62	1.15	2.228*^{C}

* Indicates that change is significant at .05 level, with 29 degrees of freedom.
^{E} Indicates in favor of Experimental grp., ^{C} indicates in favor of Comparison grp.

Fig. 11 Mean Mental Age Change in Spatial Relations Scores: PMA 2-4

Both groups, Experimental and Comparison, showed the greatest increases immediately following their summer activities. The Comparison group displayed additional increases during the next period, however, while the Experimental group decreased in their scores. This difference between means is statistically significant. Both groups showed slightly less than expected growth in the December-March test period. The result for June to March was more than twice the expected increase for the Comparison group and less than the expected increase for the Experimental group. The differences between the means for the entire period under study was found to be statistically significant in favor of the Comparison group. Overall, these results are a marked contrast to the less-than-expected mental-age increases recorded by the K-1 groups on this sub-test.

Mental Age Scores on PMA: K-1 Group (Mean)

The following graphs illustrate the mean mental age changes as measured by the K-1 form of the Primary Mental Abilities Test. Each graph presents the topography of the test behavior, providing graphic comparisons between the four sub-tests.

The first administration of the test in June 1967, provides a baseline against which subsequent changes have been measured.

The "shape" of the graph for both the Comparison and Experimental groups are similar. Verbal Meaning and Perceptual Speed almost coincide between the two groups; Number Facility and Spacial Relations are higher for the Experimental group than the Comparison. Spatial Relations was the lowest sub-test score for both groups. Placed in contrast to the mean chronological age for the children, both groups' mean mental ages were below the norms for all the sub-tests: from -.70 to -1.13 years (approx.) for the Experimental group and -.3 to -1.10 years for the Comparison group. In the follwoing graphs, MECA=Mean Experimental (group) Chronological Age and MCCA=Mean Comparison (group) Chronological Age.

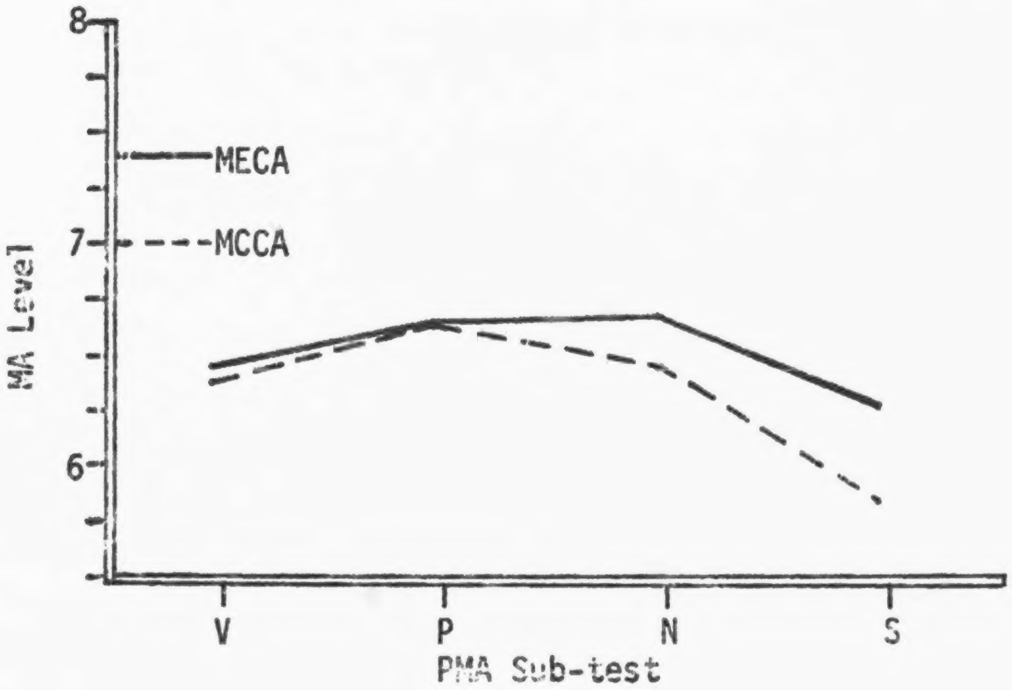


Fig. 12 PMA K-1 Mean MA Scores: June 1967

The second administration of the tests produced a contrast in sub-test scores. The Experimental group greatly increased in Perceptual Speed with small increases in the other three tests. A pattern was established that remained throughout subsequent test sessions: Perceptual Speed provided the highest scores of the four sub-tests, while Spatial Relations remained the lowest scoring subtest.

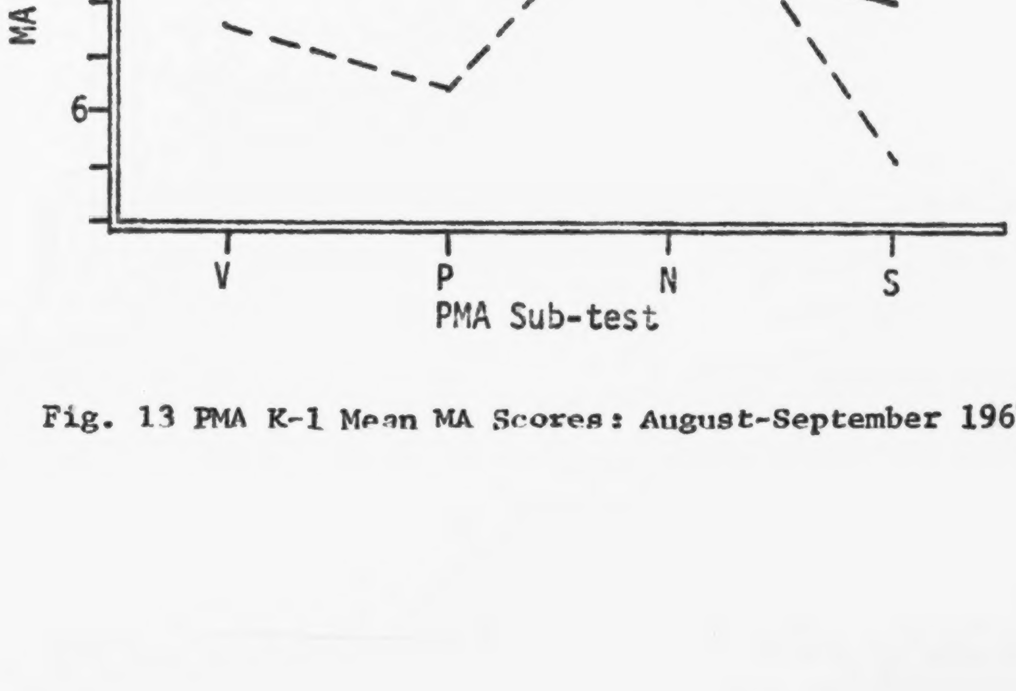


Fig. 13 PMA K-1 Mean MA Scores: August-September 1967

The Comparison group decreased in Perceptual Speed and Spatial Relations, remaining stationary in Verbal Meaning, but made notable gains in Number Facility. This pattern was atypical of any other test sessions, as will be shown.

The third test session, in December, produced mean expected and greater than expected increases over the second test for the Experimental group. The relationship between the four sub-tests remained the same: Perceptual Speed exhibiting the highest mean mental age score, and Spatial Relations one of the lowest scores. (In this session, Verbal Meaning and Spatial Relations were nearly the same, 6.93 and 6.97 respectively.)

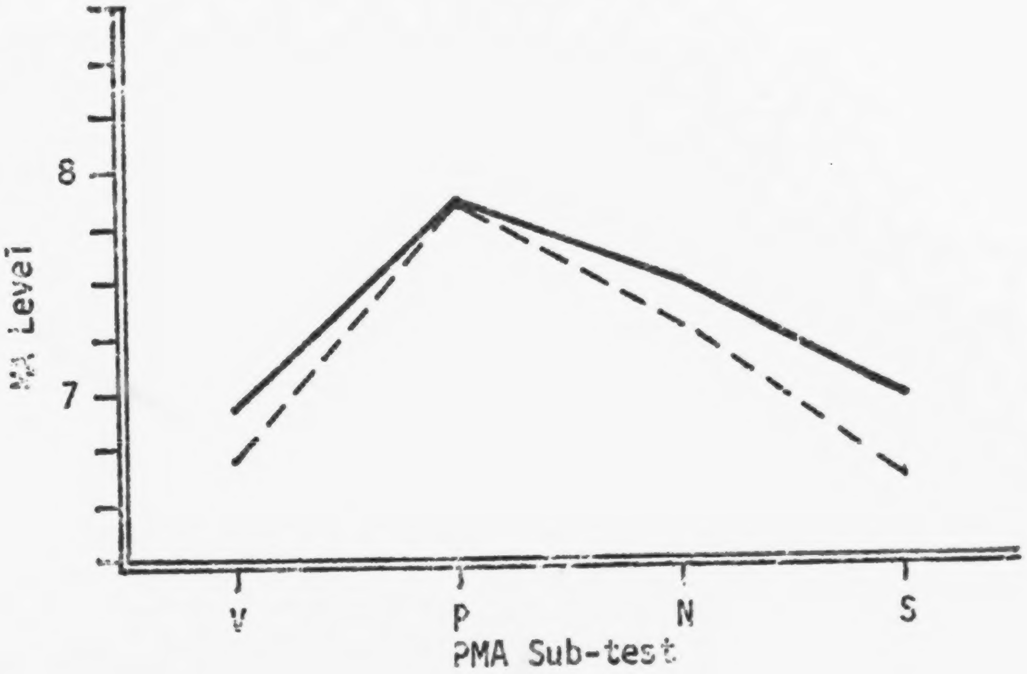


Fig. 14 PMA K-1 Mean MA Scores: December 1967

Here, the Comparison group resumed its earlier pattern of sub-test scores: their highest mean score in Perceptual Speed, next highest in Number Facility and lowest scores in Spatial Relations and Verbal Skills. The recuperation of Perceptual Speed skills was the most dramatic of any changes in the testing program: 1.73 years in a .27 year period. Equally interesting was the failure to benefit from the summer thrust in Number Facility; the increase between the second and third tests was the smallest for that sub-test.

The final test session, in March 1968, shows Perceptual Speed continuing with the highest Mean Mental Scores of the four sub-tests. Based on Mean Chronological Age in March, this was the only sub-test in which the mental age of the K-1 groups exceeded the chronological age.

Both groups decreased in scores on Spatial Relations compared to the December tests. The Experimental group decreased in Number Facility scores, and the Comparison group showed no change on that test.

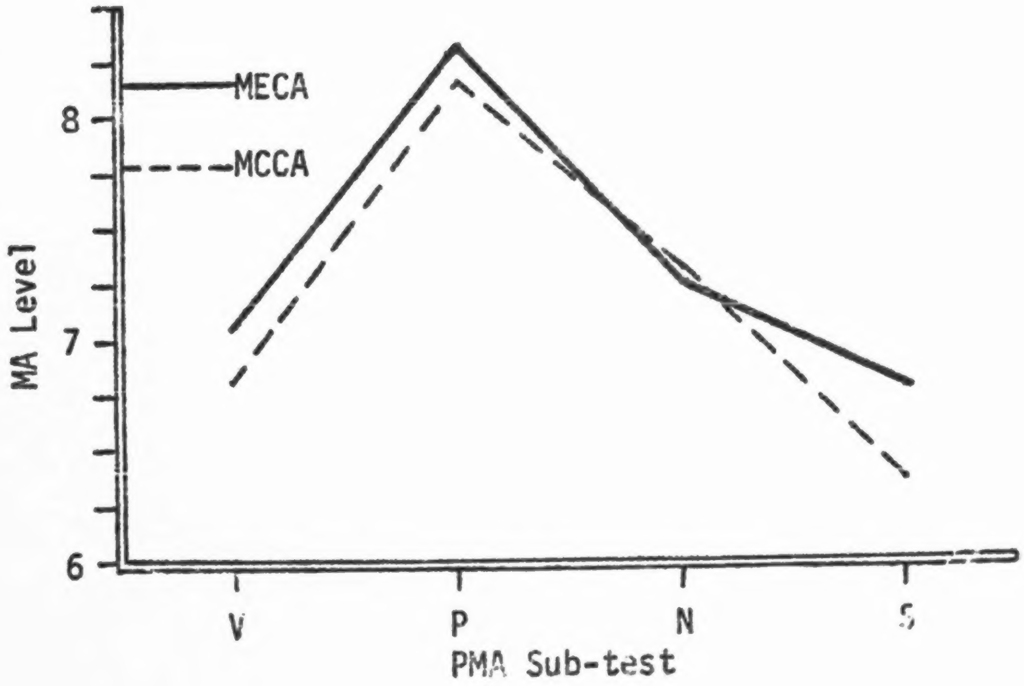


Fig. 15 PMA K-1 Mean MA Scores: March 1968

The test data for the K-1 groups raise quiestions. Two of the tests, Perceptual Speed and Spatial Relations, rely heavily on perceptual skills. With such similar topography, why did the K-1 children's performance on these tests contrast so sharply; i.e., high scores in Perceptual Speed and low scores on Spatial Relations. One possibility is presented by the format of the test. The Perceptual Speed test uses pictoral representations of familiar objects: animals, flowers, boats, for example, and requires the child to match-to-sample. The Spatial Relations test requires, on one section, that the child perceive the components needed to interlock pieces for a square and, on the other section, complete a drawing to match an example.

Mental Age Scores on PMA: 2-4 Group (Mean)

As with the K-1 students, the group tested with the 2-4 PMA developed a between sub-test pattern in June that remained consistent throughout the four test sessions.

Both the Experimental and Comparison groups performed best on the Perceptual Skills and Spatial Relations respectively in all four test administrations. Also, the Number Facility sub-test consistently yielded the lowest scores each time the test was administered.

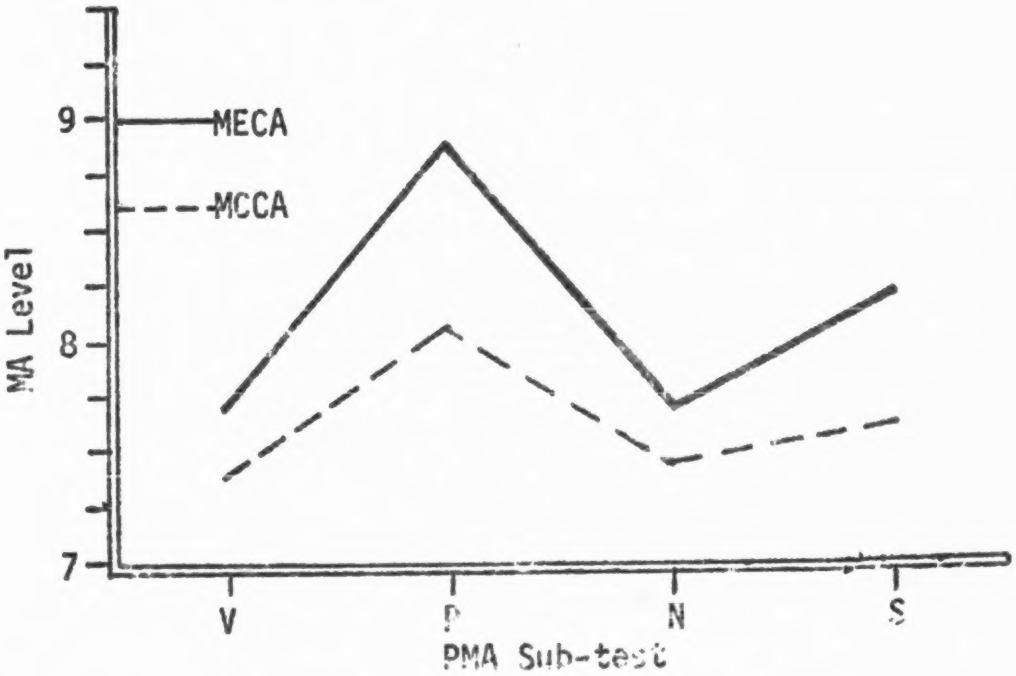


Fig. 16 PMA 2-4 Mean MA Scores: June 1967

With the June data as a baseline, the Experimental group decreased by small measure in Perceptual Speed and Number Facility. A small increase was made on Verbal Meaning and a greater than expected change in Spatial Relations. The Comparison group, in the same period, increased considerably on all tests except Number Facility, in which little change was noted.

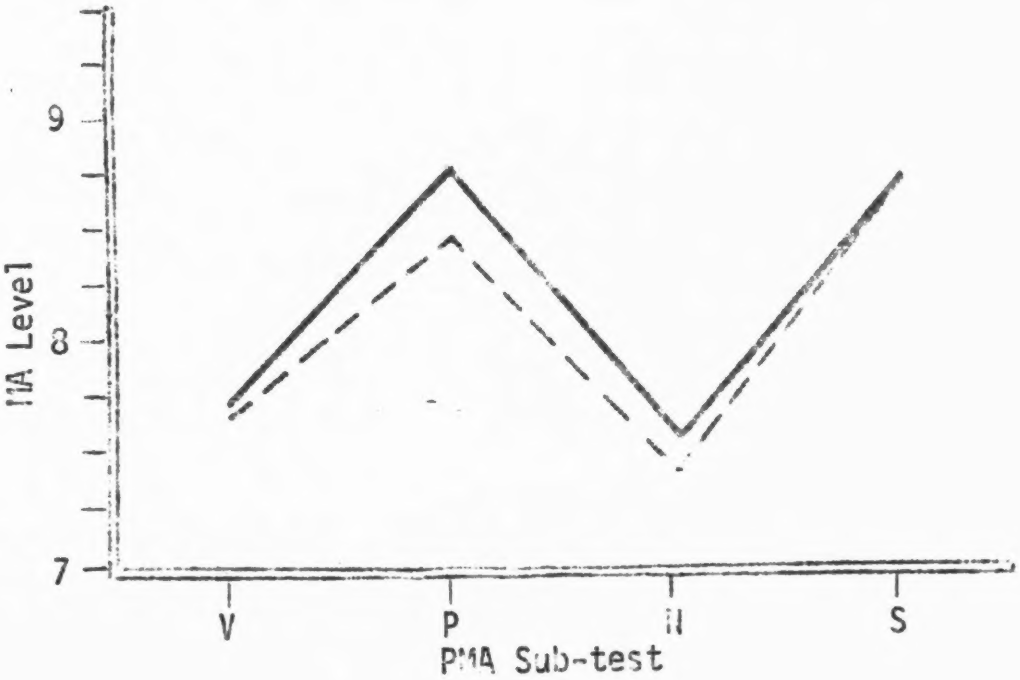


Fig. 17 PMA 2-4 Mean MA Scores: August-September 1967

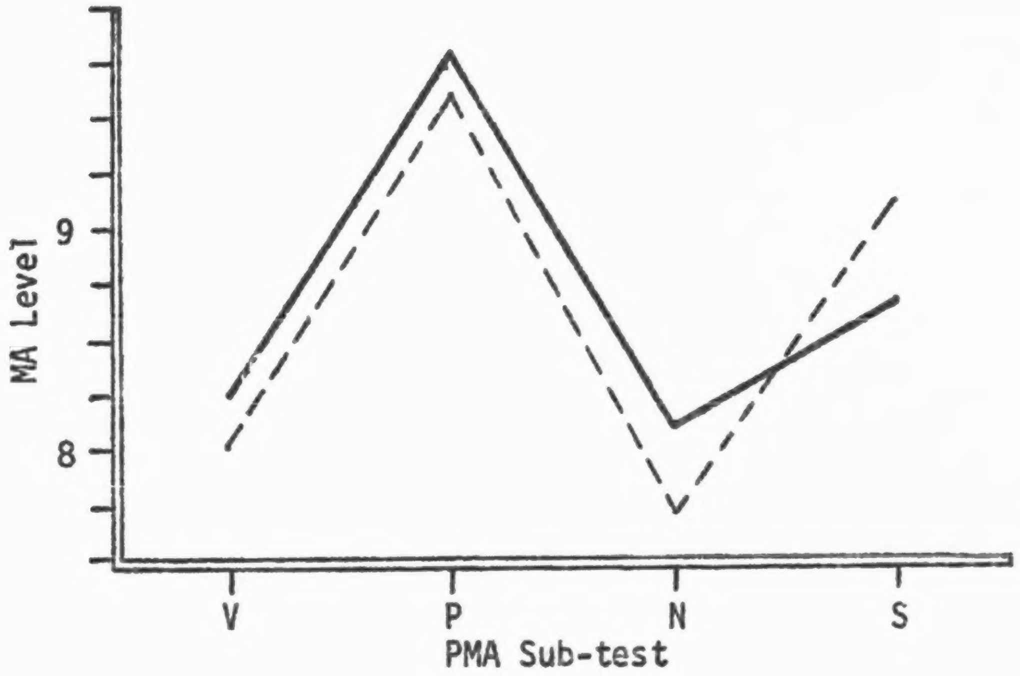


Fig. 18 PMA 2-4 Mean MA Scores: December 1967

In December, the Experimental group increased on all tests except Spatial Relations, where a small decrease was recorded. The Comparison group increased on all the subtests.

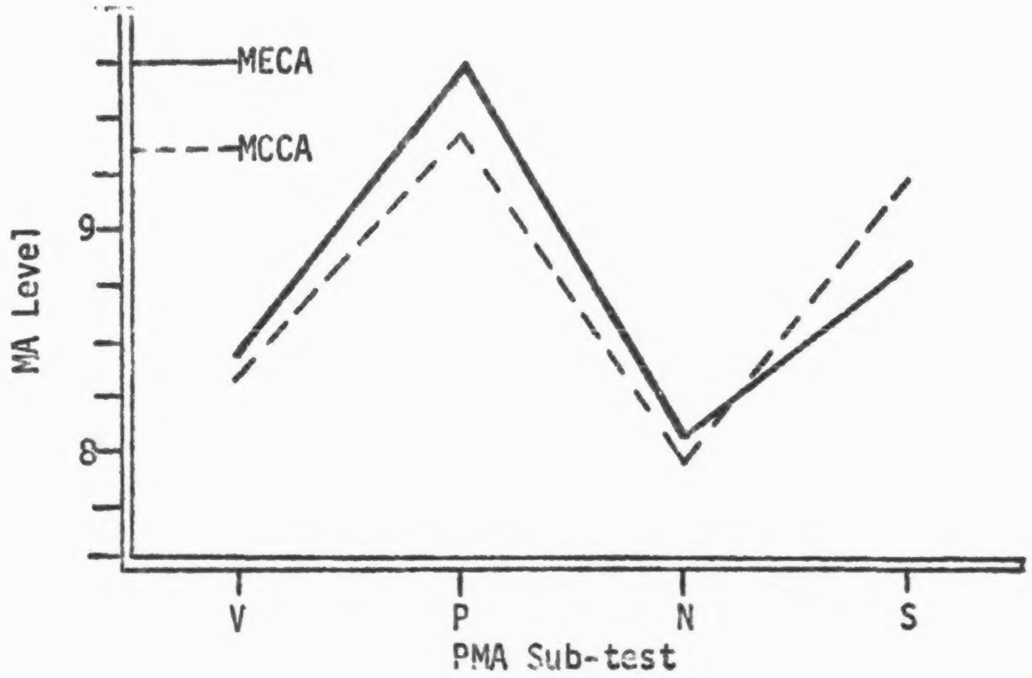


Fig. 19 PMA 2-4 Mean MA Scores: March 1968

The final test, in March 1968, shows both groups making small gains in Verbal Meaning and Spatial Relations. In Perceptual Speed, the Experimental group made a negligible increase, the Comparison group a small decrease.

In Number Facility, the Experimental group scores decreased slightly and the Comparison group made an increase. As with the K-1 groups, Perceptual Speed was the only sub-test on which the mean mental age ever equalled the mean chronological age.

For all four groups of children, K-1 and 2-4, Experimental and Comparison, one factor demands attention: the greatest proportion of change (increase) on test performance occurred during the first three months of school, the least during the second three-month period. Whether this phenomenon is peculiar to the Morgan school population, affected as it was by staff changes, cannot be documented.

Measurement of Non-participation

CAE assumed that attendance of classes was not the only meaningful measure of participation in the Friends/Morgan program. Although attendance alone may be considered an index of attractiveness and thus a gross measure of the program's appeal for the children, the actual effect of the F/M program might be better correlated with specific participation behavior within the project.

Participation was defined as the children's performance in carrying out the requests and directives of the teacher in the classroom. Non-participation, the failure to carry out these requests and directives, was a broad category which included many ways of not complying with the demands of the teachers. These included the extremes, from failing to initiate a proposed activity to active disruptive behaviors such as fighting. The changes in test performance (from PMA pre-test to post-test scores) could be attributed to the program in proportion to the amount of time the students actually participated.

Since it was assumed that the children would participate in a program designed so as to capture their interest and attention, the non-participation behaviors would be fewer and thus more easily observable and recordable. Moreover, participation and attention are frequently not easily observable while gross not-participation is observable.

Each art form required different behaviors. In drama class, the teacher frequently requested the children to sit quietly, watch, and listen to a performance. (Strengthening the listening and observing behaviors was a general program aim and a specific teaching task for drama.) In art and woodwork there were fewer situations demanding sustained quiet listening and observing behavior; only short periods for demonstration of techniques in handling tools and materials were required. The participation was defined in terms of the initiation and active carrying out of a project. Non-participation in these classes might have been expressed by a lack of self-determined goal-directed activity as much as active disruptive behavior. Dance and sports required some quiet observing of fellow students' performances while waiting for their turn to perform. Both classes required a great deal of channeled physical activity. Music class required a great deal of sitting still and listening to songs and music. Participation in music permitted little physical movement. However, non-participation in this class might have included "non-singing" as well as more actively disruptive behaviors (e.g., talking with a neighbor) during the artist/teacher's presentation of materials.

Each art class had an assigned research intern whose primary activity during the morning program was to observe the children during the class period and to note non-participation and disruptive behaviors. He was to record these on forms designed for this purpose.

Cumulative scores in non-participation were averaged in relationship both to the F/M demonstration program's class groupings by grade (1X, 1Y, 2X, 2Y, 3 and 4) and by sex. All classes of each art form were scored for non-participation.

The average minutes of recorded non-participation per child per art form through the duration of the program was 36.35 minutes. Each student attended thirty 40-minute classes per art form for a total of 1200 minutes.

First Grade

As compared to the program average of 36.35 minutes, the first grade produced a combined group average recorded non-participation per art form record of 33.01. However, the first grade was divided into two sections, 1X and 1Y, which shared music and drama in one combined class experience, but separated for the other two hours of the morning program. Group 1X took sports and woodwork, while 1Y took dance and art. The average non-participation score per course for the 1X group was 25.44; the score for the 1Y group was 40.57. When the data for group 1Y was further divided into scores for boys and girls, the average non-participation score for the girls was 57.75 minutes, compared with the boys' score of 29.86 minutes. The range or non-participation scores for the different art forms was from an average of 0.91 minutes recorded non-participation for the 1X boys in their sports course, to an average of 99.00 minutes of recorded non-participation for the 1Y girls in their drama course.

GROUP	N	HOUR 1	HOUR 2	HOUR 3	HOUR 4	Mean Minutes of non-participation	Total Grp. Mean per hour
1X - B	11	M=13.64 Woodwork	M=48.18 Music	M=.91 Sports	M=44.09 Drama	M=26.70	M=25.44
- G	6	M=21.67 Woodwork	M=37.50 Music	M=4.17 Sports	M=29.17 Drama	M=23.13	
1Y - B	8	M=26.88 Art	M=36.25 Music	M=34.38 Dance	M=21.88 Drama	M=29.86	M=40.58
- G	5	M=28.00 Art	M=33.00 Music	M=71.00 Dance	M=99.00 Drama	M=57.75	

Second Grade

Compared with the average program non-participation score of 36.35 minutes, the second grade recorded a combined group non-participation average of 27.98 minutes. The grade was divided into two homeroom groups, 2X and 2Y. One group (2X) took sports, while the other group (2Y) took dance. The boys of both groups took woodwork. The girls of both groups took art. The 2X group produced an average course non-participation record of 14.20 minutes, the least non-participation of all classroom groups. The non-participation record of group 2Y was 41.95. The girls of group 2Y had a non-participation average of 54.31. The boys were more cooperative, with a non-participation average of 26.17. The second graders' range of average minutes of recorded non-participation per art form was from 1.43 for 2X boys in sports, to 110.56 for 2Y girls in drama. On averages, the second grade had the highest level of participation.

GROUP	N	HOUR 1	HOUR 2	HOUR 3	HOUR 4	Mean Minutes of non-participation	Total Grp. Mean per hour
2X - B	7	M=1.43 Sports	M=32.14 Drama	M=17.86 Woodwork	M=17.86 Music	M=17.32	M=14.21
- G	8	M=6.87 Sports	M=24.38 Drama	M=7.50 Art	M=5.63 Music	M=11.09	
2Y - B	7	M=29.29 Dance	M=25.71 Drama	M=12.86 Woodwork	M=36.43 Music	M=26.17	M=41.95
- G	9	M=37.22 Dance	M=110.56 Drama	M=58.89 Art	M=10.56 Music	M=54.31	

Third Grade

The third grade produced a non-participation group score of 49.63 compared with the program's average score of minutes of non-participation, 36.35. This group shared combined music and drama classes, but separated for the other half of the program. The girls took art and dance, while the boys took woodwork and sports. The average minutes of non-participation per course for the boys as a group was 25.36. The girls, as a group, produced an average

GROUP	N	HOUR 1	HOUR 2	HOUR 3	HOUR 4	Mean Minutes of non-participation	Total Grp. Mean per hour
3 - B	14	M=6.07 Drama	M=2.14 Sports	M=80.71 Music	M=12.50 Woodwork	M=25.36	M=49.63
- G	13	M=78.84 Drama	M=95.00 Dance	M=36.92 Music	M=92.31 Art	M=75.77	

non-participation score of 75.77 per course. The range of non-participation per group throughout a course of a given art form was from 2.14 minutes for the boys in sports ot 95.00 minutes for the girls in dance. The sports activity was a planned equivalent to dance.

Fourth Grade

As compared to the program's overall average minutes of non-participation per course score of 36.35, the fourth grade recorded an average score of 36.89. Both boys and girls shared classes of music and drama, but the boys took sports and woodwork, while the girls took dance and art. The boys had a non-participation average per course of 18.40 minutes. The girls had an average record of 59.08 minutes. The range of average minutes of recorded non-participation per art form was 8.89 for the boys in the woodwork course, and 111.67 for the girls in the drama course.

GROUP	N	HOUR 1	HOUR 2	HOUR 3	HOUR 4	Mean Minutes of non-participation	Total Grp. Mean per hour
4 - B	18	M=30.00 Music	M=8.89 Woodwork	M=18.61 Drama	M=16.11 Sports	M=18.40	M=36.89
- G	15	M=35.67 Music	M=45.33 Art	M=111.67 Drama	M=43.67 Dance	M=59.08	

This data might be useful for future programs in selecting activities which are more or less absorbing for the different age groups that participated in this program.

Surprise Time Tests

The short daily tests developed for "Surprise Time" were primarily aimed at probing the degree to which the children could express on paper, or through other recordable media, what they knew and what they had learned in respect to the weekly concept themes. Major emphasis was not placed upon these short tests as means of evaluating the content or procedures of the summer program. They were simply to be used by the staff as indicators of the children's ability to perform specific conceptual skills before and after the learning sessions devoted to the development of these skills. The scores for the tests were posted daily and were eminently available for teacher inspection. In practice, few of the teachers stopped to avail themselves of the information resulting from these tests. A major feedback facility was thereby thwarted and, in the view of the CAE staff, many valuable operational clues for the development of the program were precluded.

The CAE staff planned that each weekly unit devoted to a particular concept theme would be bracketed by a pre- and a post-test covering that material. Tests given through the week would then probe for sub-concept topics on a daily basis. For example, on day 3, could the children demonstrate what had been the topic taught during day 2? A schedule of test formats was constructed for this rationale, based upon the predetermined concept themes. Certain variation on this organization was required during the course of the program (see Appendix #3 for a complete presentation of "Surprise Time" tests).

During the first day of the program, which was a day of orientation for the children, the "Surprise Time" test was used to determine the students' ability to identify themselves by writing their names on the "Surprise Time" envelopes (a game of "Simon Says" was also played). The second day's activity required the first and second grade children to write their names (first and last), ages, birthdates (day and month), name of the street on which they lived, and their house number. The older children were also required to write the name of the city in which they lived. These items were suggested by the Assistant Project Director as useful in determining a general level of personal and verbal skill for the children and the actual test developed was named for him (the "Simons Test"). In all cases, proper spelling was not a criteria for grading -- any fair approximation of the required information was counted as correct. A wide variation in correct personal information was found among the four grades of children, with the mean score for the first graders not exceeding 25% correct.

	Gr 1	Gr 2	Gr 3	Gr 4
June 27	23%	54%	64%	89%
July 31	35%	-	-	-

Fig. 20 Results of Two Administrations of "Personal Information" Quiz for "Surprise Time"

The same information was solicited from the first grade children approximately one month later, on July 31. It may be noted that they made substantive gains in the number of items that they were able to complete.

The test for the third day was devoted, as planned, to probing the children's abilities to select, from examples provided, answers to questions from literal representations of concepts relating to space (under/on top, up/down, etc.). The style of the third day's presentation was very much like that of the usual school achievement test--choices of representational picture-form material or cues. The high level of correct choices contradicted the assumptions about the children's incapacities in relationship to this material, so another form was sought. The same concepts were presented on the fourth day's test using abstract visual cues. The level of correct identification and choice remained high for all age groups of children. Therefore a third form of test was devised for the fifth day which required the children to construct responses, using paper and pencil, indicating their ability to actively use the spatial relationship concepts. At last some indication of incapacity was revealed, as well as a range of ability that distinguished between the 4 age groups. Clearly the younger children had something to gain from a program that intended to teach them such concepts. They might recognize when an arrow pointed up, but, for whatever reasons, they could not draw an arrow that pointed up when it was required. The gap between these two behaviors, though not forseen in this project, is an interesting piece of information for all educators. This gap was further revealed by the scores on the Game Test given July 6 which required actively using direction and small number cues. There was not so marked a difference between the recognition and construct tests for the size concepts. The 62% score of the youngest group on the July 10 construct test for the size theme of week three did contrast with their 86% average score on the July 7 test for recognition of size concepts. But for the other groups there was not an important difference in their ability to recognize or to use the concept of size.

TEST DATE	PROGRAM DAY #	PRE/POST TEST	Gr1	Gr2	Gr3	Gr4	TYPE OF TEST AND CONTENT
June 26	1		-	-	-	-	Orientation
June 27	2	Pre	23%	54%	64%	89%	"Simons Test"
June 28	3	Pre	75%	90%	93%	97%	Recog.-Rep. Space
June 29	4	Pre	75%	93%	93%	97%	Recog.-Abs. Space
June 30	5		44%	65%	77%	91%	Const.-Abs. Space
July 5	6		54%	79%	93%	94%	Const.-Abs. Space
July 6	7		-	38%	58%	74%	Game Space
July 7	8	Pre	86%	92%	96%	94%	Recog.-Abs. Size
July 10	9	Pre	62%	88%	91%	95%	Const.-Abs. Size
July 11	10		-	-	-	--	Game Size
July 12	11		36%	65%	70%	75%	Recog.-Abs. Size
July 13	12		38%	60%	79%	85%	Game For Fun
July 14	13	Pre	68%	71%	72%	80%	Recog. Shape
July 17	14	Pre	32%	56%	65%	78%	Constr. Shape
July 18	15		24%	58%	73%	78%	Recog. Shape
July 19	16	Post	39%	74%	89%	94%	Const. Shape-Space
July 20	17		-	-	-	-	Game Shape
July 21	18		55%	56%	69%	92%	Variation, "Simons Test"
July 24	19	Pre	35%	33%	49%	69%	Const. Time (2)
July 25	20		86%	61%	63%	70%	Const. Time (2)
July 26	21		-	-	-	-	Games Time (2)
July 27	22		-	88%	18%	35%	Games Time (3)
July 28	23	Post	36%	41%	40%	71%	Recog. Time (2)
July 31	24	Post	35%				"Simons Test"
		Pre		34%	56%	81%	Recog. Measure
Aug. 1	25		56%	69%			"Simons Test"
					41%	76%	Recog. Measure
Aug. 2	26		-	-			Game
					77%	95%	Const. Time
Aug. 3-7	27-29	No Tests	-	-	-	-	----------------
Aug. 8	30		90%	83%	85%	90%	Const. Space

KEY: Recog.= Recognition; Const.= Construction; Rep.= Representational; Abs.= Abstract

Fig. 21 Scores for "Surprise Time" Tests and Games Throughout Project (Where Available)

It is quite evident from the rest of the daily test scores that the older children, those from the 3rd and 4th grades, were scoring well on all pre-tests of concept material requiring recognition-type responding except those given for the week dealing with TIME-SPEED. Pre-tests requiring constructed responses provided lower scores. However, the 1st grade children scored considerably lower on most of the pre-tests. A significant finding was the contrast between the June 30 pre-test on space concepts and a comparable post-test given on August 8. Here, the 1st grade children improved their scores dramatically over the term of the project. The 2nd and 3rd graders also improved their scores, but not as markedly as the younger children. Even when considering the constructed-response tests separately, it is clear that the younger children knew less of the concept theme topics (of course, only as measured by the tests themselves) and that they made, overall, the greatest relative progress in these tests. This finding is in keeping with results obtained from administrations of the PMA tests.

One of the recognized shortcomings of the CAE program was the degree to which the daily tests did not, and could not, reflect the daily components of the arts program. It became quite apparent, after the first week of the project, that some of the art teachers were deviating from the terminal objectives for each week. This, in itself, would not have precluded the development of daily tests relating to these concepts; however, the daily Class Evaluation Sheets were not rigorously maintained by some of the teachers and this permitted a break in the line of communications required for development of appropriate daily tests. The most appropriate comment to be made is that evaluation and demonstration teams should be motivated by the same goals, and, most favorably, be comprised of the same personnel.

Student-Intern Test Data

One purpose of the CAE research was to measure the increase in general educational skills and the increase in the problem-solving capability of the F/M student-interns. It was hypothesized that changes would be made in reading and math skills, since these concept areas would be emphasized for the children in the program. Moreover, it was assumed that observational and judgment skills would change with the experience inherent in supervising a group of young children.

A battery of tests was given to the interns prior to the beginning of the F/M project. The scores from these tests were to be compared with scores from the same tests given at the end of the project. The change would be an indication of the effects of the program on the interns in the areas of math, reading, judgment, and observation.

Hence, after a period for critical review, four tests were selected to be administered from the FACT series of fourteen instruments. This series was originally developed to establish a standard of aptitudes for success in particular occupational tasks. The particular tests of the FACT series that were used proposed to measure each of these areas of proficiency. Both Inspection and Components measure the ability to observe details quickly and to relate components to complex situations. Basic math skills were measured

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with the Arithmetic test, a series of problems in addition, subtraction, multiplication, and division. The Judgment and Comprehension test measures responses to problems, as well as probing reading skills.

Because the student-interns were categorized in their responsibilities (with the exception that they all participated in the afternoon activities) the nature of the program assignments of the interns provided additional hypotheses on the measurement of their test changes. These categories and subsequent hypotheses follow.

Artist Interns

One student was assigned to each of the six artist/teachers as an assistant. Consideration was given to special skills, talent, or preference in this selection. For instance, the intern assisting the music teacher played the guitar and served as an accompanist for singing. The assistant to the dance teacher was skilled in dance techniques. Since the artist interns concentrated on the particular curriculum concepts emphasized in their art form, it was hypothesized that the test scores should reflect this specialization. For example, dance was to stress the formulation of number concepts. Therefore, the increase in mathematical skills for that student intern should be greater than the average increase for the total population.

Research Interns

One student was assigned to assist each of the six teachers. This student was responsible for recording all data on the Class Participation Record Sheet. Attendance, participation, disruptions, and anecdotal material were recorded for each class. As with the artist intern, the emphasis on one art form would increase the probability of growth in that concept area. Further, the demand placed on observational duties would enhance the likelihood of increase in that test area.

Anchor Interns

Two or three of the interns were assigned to supervise each of the six groups of children. This supervision included homeroom participation, travel between and during classes, and general supervision/participation during class. The anchor interns had complete responsibility for the children during the homeroom lunch hour. With the emphasis on their task of supervision of the children, it was hypothesized that their proficiency in problem-solving and observational skills would improve.

Floaters

These interns had a flexible schedule, performing whatever duties they were assigned, filling in for absent interns, helping with clerical duties, etc. One student was assigned the preparation and distribution of the milk, juice, and cookies. They were responsible for indicating the class change time. By the end of the program all except one had received permanent duty assignment. The hypothesis for this group was for a smaller test change than the average of the total group.

All interns participated as assistants in the afternoon club activities. The scores from the FACT tests were grouped according to (1) total intern population; (2) Friends community/Morgan community; and (3) assignment--artist, research, anchor.

Score change on the Judgment and Comprehension test was slight or negative. Many of the daily activities of the interns required the assumption of responsible authority and decision-making. It was thought the gains in skill in these areas would be revealed by this test. However, the reading skill, which is the first requirement of the test, was not reinforced in the program's activities. In raw scores, the Morgan interns made a small gain (+1.0) while the Sidwell interns decreased on this test (-0.93). Sorted as to job assignment, the research interns made a slight increase (+0.7) while the anchor interns remained essentially stationary (-.20). The artist interns, busy teaching and demonstrating other skills, decreased in these scores (-2.4). Analytic reading skills were not utilized in the program's activities, and neither program students nor interns gained in this area.

FACT JUDGMENT AND COMPREHENSION TEST (Correct Maximum Choices: 24)

Group	N	Total Score Pre-Test Mean	Total Score Post-Test Mean	Mean of Raw Score Change
Sidwell	15	19.8	18.6	-0.93
Morgan	5	12.8	13.8	+1.0
Total	20	18.1	17.4	-0.45
Anchor	12	16.6	16.4	-0.2
Artist	5	20.0	17.6	-2.4
Research	3	20.3	21.0	+0.7

One of the aims of the F/M program was to strengthen the skills underlying arithmetic and the specific art forms--music, dance, and sports--were supposed to incorporate number concepts into their content. The activities of woodwork naturally required number usage in measurement. Gains in arithmetic were anticipated for the interns as well as the students. The program children appeared to have benefited only slightly in this area, but all of the interns showed some increase in scores. The Sidwell interns made their firmest score gain in all FACT tests in the arithmetic area (8.9), while the gain of the Morgan interns was not as marked (1.7). Sorted as to program activity, the artist interns (most of whom were involved in the teaching of number concepts) made the greatest average group score increase (10.6); the research interns (8.0) and anchor interns also made definite gains (5.5).

FACT ARITHMETIC TEST (Correct Maximum Choices: 125)

Group	N	Pre-Test Mean	Post-Test Mean	Change Mean
Sidwell	17	54.7	63.6	8.9
Morgan	6	48.8	50.5	1.7
Total	23	53.1	60.2	7.1
Anchor	12	44.8	50.3	5.5
Artist	5	59.2	69.8	10.6
Research	5	63.2	71.2	8.0

A major program aim was to increase perceptual skills. The Inspection test was chosen to measure changes in perceptual speed and accuracy. The Morgan interns made the greatest group gain in this area registering a 10.0 raw score gain as compared to the 2.6 average of the Sidwell interns. As with the children participating in the program, the interns' area of greatest gain was in perceptual speed. When sorted by job assignments, the artist interns involved in the teaching showed the greatest raw score gain (7.3); the anchor interns made a small gain (3.6) and the research interns very little gain (1.3).

FACT INSPECTION TEST (Correct Maximum Choices: 155)

Group	N	Pre-Test Mean	Post-Test Mean	Change Mean
Sidwell	15	79.2	81.8	2.6
Morgan	4	57.0	67.0	10.0
Total	19	74.2	78.6	4.4
Anchor	11	68.2	71.8	3.6
Artist	5	79.8	87.1	7.3
Research	3	88.0	89.3	1.3

The Components test, similar to the PMA Spatial Relations test for the children, was considered a measure of perceptual skills demanding more complex analytic skills. Gains were made by all intern groups. The raw score gains of Sidwell (4.4) and Morgan (4.5) interns were essentially the same. Sorted as to job assignments, their gains were very much the same: research (5.8), artist (5.6), and anchor (4.0)

FACT COMPONENTS TEST (Correct Maximum Choices: 40)

GROUP	N	Pre-Test Mean	Post-Test Mean	Change Mean
Sidwell	16	28.8	33.3	4.4
Morgan	6	20.3	24.8	4.5
Total	22	26.5	30.9	4.4
Anchor	11	24.0	28.0	4.0
Artist	5	27.4	33.0	5.6
Research	5	29.2	35.0	5.8

Grouping interns according to their job assignments in the program suggests some meaningful relationship between increase in raw scores on the FACT and the way they participated in the program's activities.

TEST	RESEARCH	ARTIST	ANCHOR	TOTAL INTERNS
Judgment and Comprehension	0.7	-2.4	-0.2	-0.45
Arithmetic	8.0	10.6	5.5	7.1
Inspection	1.3	7.3	3.6	4.4
Components	5.8	5.6	4.0	4.4

The increase for research interns in Judgment and Comprehension was expected because of their assignment as observers. They registered a very slight gain (0.7). They showed considerably smaller gain in Inspection (1.3) than the mean of the whole intern group (4.4). Their gain in more analytic perceptual skills, measured by Components, was slightly higher (5.8) than the total mean gain (4.4). Their gain in arithmetic skills (8.0) was slightly above the average gain of the entire intern population (7.1). It should be noted that their pre-test and post-test scores in every area were higher than those of the other groups.

The six artist interns, most closely involved in teaching, showed the greatest group gain. They made the greatest group gain on Inspection and Arithmetic tests, the areas most stressed by the program content. They made above average gain in the complex perceptual Components test and the greatest group decrease in skills measured by the Judgment and Comprehension test.

The anchor interns, in their custodial assignment, made the smallest group gain in Arithmetic and Components. They pre-tested and post-tested with lower mean scores than the other two groups.

Changes in Raw Scores on the FACT between the Pre- and Post-Program Testing Sessions

TEST	SIDWELL	MORGAN	TOTAL
Judgment and Comprehension	-0.93	1.0	-0.45
Arithmetic	8.9	1.7	7.1
Inspection	2.6	10.0	4.4
Components	4.4	4.5	4.4

Raw score gains on the FACT tests administered to the interns indicate that they all gained from their six weeks' very active involvement in the Friends/Morgan project, and they gained in different ways. The Morgan interns made their greatest gains in the perceptual speed skills, as did the children participating in the program. They also made a firm gain in analytic perceptual skills. Arithmetic and reading skills benefited slightly. The Sidwell interns made their greatest gain in arithmetic; they made equivalent firm gains in analytic perceptual skills, but much smaller gains in perceptual speed. They decreased in their reading skills. It should be noted that the pre-program mean of the Sidwell interns' pre-test scores was higher in all test areas than the mean of the Morgan interns.

CONCLUSIONS AND RECOMMENDATIONS

The major purpose of the research embodied in the project, "Measuring the Contribution of the Arts in the Education of Disadvantaged Children" (CAE), was to ascertain the changes in educational behavior of participants as a result of their involvement in the Friends/Morgan Summer Demonstration Program in the Arts (F/M Project). It has been hypothesized that success in the arts would facilitate success in the classroom, that providing opportunities for pleasurable learning experiences during the summer would enhance the association between learning and enjoyment for participating children when they returned to school.

With the purpose of the program and the curriculum already established, CAE was to develop a data collection system to measure the effectiveness of the summer program, commensurate with the increasing attention and emphasis currently being given to evaluation in education.

To effect an objective measure of educational changes, the children were administered all subtests of the Primary Mental Abilities battery. The results of this battery indicated increases in perceptual skills for the participating children, but yielded no overall statistically significant differences with a comparison group of children. The small total improvement, as indicated by the PMA test scores, of those children who participated in the program could be explained in three ways.

1. The minimal gain might be attributed to the overactive behaviors of these children which could have interfered with their means of demonstrating learning in a test situation.

2. The minimal gain might be attributed to the style of presenting the curriculum. The daily activities of the art classes may not have been effective or appropriate for these children.

3. The areas of minimal change might be attributed to the content of the program. This curriculum may not have contained what the children needed for improvement of their academic performance as measured by the PMA test instrument. For example, the children in grades 3 and 4 did not practice any computational skills in arithmetic. However, a subtest of the PMA (2-4) included a series of addition problems. Because the curriculum did not prepare the students for this section of the test, lack of improvement in numerical ability test scores can be accounted for. Alternately, the PMA (K-1) does not require computational skills and the test scores of these children are within the normal projected range of increase.

In light of the evidence gathered, it appears that the slight gain on the PMA is more likely the result of either the second or third explanation presented above. The first explanation is contraindicated by both the positive behavioral change evidenced by the children during the daily program testing periods and observations of the children during PMA testing sessions. If anything, the later PMA testing sessions should have promoted higher scores, as particular attention was paid to providing small class size and numerous monitor/assistants during the testing sessions. Further, the second explanation does not appear to be the sole cause, as active participation by the children was a hallmark of the summer program and their interest increased over the program term. These observations would appear to indicate that the program's art activities were appropriate for the children. The third explanation would seem the most likely to provide the reasons for minimal PMA change. The conceptually oriented curriculum does not appear to have had a significant proportion of elements in common with the PMA testing instrument and changes appropriate for measurement by the PMA would, therefore, not accurately reflect behavior modification within the program's curriculum. In addition, the program design specified artistic involvement throughout the day and did not permit extension of the curriculum concepts to readily testable behaviors such as those required on the PMA.

Although CAE defined and measured a number of educationally-related behaviors, other elements of positive change became apparent as the program continued. Most of these positive changes were relevant to the demands of a school setting and, if maintained, could have contributed appreciably to success in the classroom. While these changes are not validated by objective instruments, they demand attention as a core of aspects which could be considered for evaluation in future projects.

The increase in the children's span of concentration was striking, both in the execution of a performance skill, such as a dance, and toward completion of a piece of handiwork, such as the ships in bottles which the boys constructed in the woodwork shop. It was evident at the start of the program that many of the children were easily distracted by nominal occurrences in the classes and that they did not have the repertoires to sustain behavior directed toward a long-range goal. Through a succession of problems presented in each class, their attention was required for ever lengthier and more complex activities. These graded problems developed both attention span and the ability to concentrate for most of the children by the termination of the project.

The decrease in disruptive behaviors, which prevent learning and hinder cooperation and attention, became noticeable during the daily testing situation. Clearly, the student's cooperative execution of requests was being shaped progressively through the program. The teachers also commented regularly upon the decreasing frequency of disruptive behaviors within their classes. Although these results could be attributed to the control exercised by the teachers within their respective classes, it appeared that the decreased disruptions were equally the result of increased student involvement in each of the activities. A longer period of the shaping of and reinforcement for positive behaviors might have maximized this pattern of cooperation, attention, and participation.

Another result of the summer program was the degree to which the children evidenced pride in their execution of handicraft skills. Initially, even though the earlier problems were geared to their "street-wise" skills, the children did not display more than nominal interest in the products of their handiwork. The teachers lavished praise on the results of their efforts, and within a short period of time, the students took a more active interest in these products. This appeared to be as much the result of the reinforcement by the teachers and their peers as the children's relative improvement in ability. By midway in the program, students were continually requesting that photographs be taken of their work; soliciting staff approval; and, generally, reacting to the staff, interns, and other students as would typical students in any good learning laboratory. The most dramatic changes were seen in students who had been among the more disruptive during the earlier weeks of the project.

It is evident by the art work produced that the Friends/Morgan summer demonstration program was also quite effective in shaping specific artistic skills for those children who participated in it. These children were supervised by enthusiastic teachers who, during the six weeks of the program, provided instructions, guided behavior, required measured performance, and counseled the students when they were having difficulty. The teachers further provided means for intrinsic reinforcement through the curriculum and topical artistic problems and liberally dispensed approval and other extrinsic reinforcement by rewarding prescribed behavior. Throughout the program, the children interacted with the environment: interpreting or acting in a play during the drama period; imitating and demonstrating increased proficiency in the skills required for sports and dance; observing, designing, fabricating, and critiquing products in the woodworking period; and taking tests for the inter-program media presented during "Surprise Time." The increase in academic performance as measured by PMA, resulting from this actual art program was somewhat encouraging for the younger children (grades K and 1).

The diversity of instructional and artistic programs permitted new learning experiences for all students enrolled. The program provided the children with teachers who attempted to assist them in developing a meaningful product from their efforts. Several perceptive and creative teachers had great skill and fluency with their subject matter, which made it possible for them to persistently maintain a high quality of teaching effort. These teachers were also able to ascertain what the students might be ready to learn within the subject matter area at any given moment and to act appropriately. They began the program with high personal motivation which was selectively reinforced by the administrative staff and public response. They also knew that at the end of six weeks they would have finished this particular job. It appeared by the end of the program that a small portion of them might not have been able to maintain their effort for a much longer period of time. Some were teachers from private and suburban schools and the realities of maintaining discipline with this hyperactive and initially undisciplined group of children taxed their endurance and inventive capabilities. Most felt, however, that they were just beginning to successfully shape the activities of the children and to develop the procedures needed when the project ended.

Just as creativity was evidenced in the development of each of the classes, so it was with the various clubs. Here, in small groups, the children were able to develop new interests or to expand existing ones, moving out of the classroom to collect specimens, to observe nature, to practice a newly learned skill. The flexibility of these organizations allowed for movement and growth in all directions: to blend with other groups for diversity, and to work independently for concentration. These clubs, through informal lectures, tours, trips, and related visitors, provided the latitude and freedom that the program designer had considered so critical to the growth of the children. The format of the clubs would have been the most conducive for the inclusion of more academically-oriented activities pertaining to material tested on the PMA instrument. It appeared to the staff of the CAE project that the club activities were the ones which by their topical interest for children and their flexibility, could be used most effectively for possible extension of learning skills and development of new methods of academic instruction.

A significant finding of the research was the extent of involvement and learning exhibited by the student-interns. The test battery administered to the student-interns indicates increases in performance on the four tests of FACT. These measurable changes speak well of the efficacy of utilizing young people in various positions of educational responsibility, not simply for their contribution to the children, but for their own benefits from such a program. It would appear unwise to disregard the use of such semiskilled student assistants in demonstrations of this nature. The increased levels of skill measured by specified testing instruments are not the only results of their involvement. More critically, the social learning they acquired and their increased dedication to assisting other younger members of society to achieve required skills were important results. The shaping of interested and involved youth for the future educational programs of the nation is one of the challenges of our age. This type of beginning involvement would be a natural manner of initiation for them.

It was the intention of the demonstration program to (1) "develop the underpinnings of reading and math," and (2) encourage further success in the regular classroom. The first aspect is readily measurable: does the child recognize a square, can he draw one on command, etc. The link between this first concept and the second, however, is more difficult to establish. The tying together of the concept of a group of children moving in space (as in dance) and the application of that principle to an arithmetic word problem would appear not to have been effected. Because this specific connection between concept and application was not firmly established, the likelihood of a successful transfer from the summer program to the students' classrooms was diminished.

Subjective observations would indicate increased proficiency in the skills of the art classes: the children did learn to sing, to dance, to build, etc. Ideally, evaluation procedures to measure these changes should have been integrated into the curriculum design, allowing the staff to establish and measure the degree to which the children met their criteria.

The purpose of the pre-program training sessions was to provide the guidelines by which the project staff could specify their terminal goals, within each art form and toward the reading and math skills. It is known that accurate objective systems for evaluating creative development have not been designed. And yet, the artists in the program were heard to speak of the talent of one child or the development of another. The criteria for such an assessment can be defined, must be defined, if art is to become more of a tool for self expressions, if it is to be used effectively to relate to the non-verbally oriented child.

It had been proposed that the success in the summer art experience might encourage the children in their regular academic endeavor. Perhaps, part of the difficulty in effecting this kind of success comes in equating the part to the whole; i.e., the teaching of perceptual skills equated with success in learning both arithmetic reasoning and adding a column of figures. Specific applications were lacking in the program, and efforts to incorporate procedures for such application were unfortunately discouraged by the program designer. Reading and math clinics were proposed by the CAE staff to be incorporated into the design, but were rejected as being contrary to the "fun" image of the summer project.

It is the firm conviction of the CAE staff that a more effective connection could have been made between basic concepts and practical application, without forfeiting the fun of the program. The very nature of the afternoon clubs utilized the materials of the art forms and the interests of the children to provide factual information and produced vigorous student participation. Some of the teachers reflected that near the end of the program the children had indicated through many behaviors that they were "ready" for using books, accepting more formalized procedures.

For The Future

Although it has become evident that there were no measurable long-term or significant educational benefits gained by students who participated in the Friends/Morgan summer project, there is no question that certain unrecorded learning was taking place. This enigma underscores the usual questions regarding the usefulness of the arts within the total rubric of academic education and the function in and degree to which the arts should be employed as elemental aspects of programs designed to shape academic behavior. Part of the problem unveiled by this project centers about the extent to which the artistic skills developed in the arts classes were measured or were measurable. Clearly, if these skills were developed, their effect was not deduced through the PMA test instrument. It is possible that other test instruments can be found or developed to assay the effect of arts programs on both the art skill behaviors and the degree to which they influence academic behavior in general. However, due to the problems of dealing with a set curriculum, developed and held to by the curriculum designer, and due to the haste in preparing for the summer program, no effective subjective tests were developed in the Friends/Morgan program.

A second question that arises concerns the supposition that general "concepts" may be taught through the media of the arts and that these concepts are the basis upon which are built particular academic skills. It appears that these "concepts" may indeed be considered "rules for academic abstraction" and that they may be more easily and readily shaped through direct involvement with the subject matter in question: reading, writing, and arithmetic. There may be no need to circumvent the major issue by relying on the arts as the media for learning when direct action is possible. This is not to imply that the arts should not be employed as arenas for the shaping and reinforcement of conceptual topics related to academic skill. Contrarily, the arts may be a singularly appropriate media for such learning. However, these arts activities should be viewed as reinforcers; desirable ingredients in a program hoping to shape academic skills and use should be made of their inherent values pertaining to creative action, fun, and contact with the students' current repertoires. The arts, like any other academic topic, are not the panacea for educational difficulties, but do provide significant benefits that other topics may lack. They should certainly be employed, but only where appropriate.

In addition to these general comments regarding the conduct of this investigation, final questions are in order: how may we add to the information that has been gathered; and, most critically, what would be the next appropriate steps based on these findings?

The major consideration for any future program must be that the goals of the project be made precisely clear. If an attempt is to be made to shape academic skills through involvement in the arts, then undivided attention must be paid to the achievement of the target behaviors--those relating to academic behavior. If additional criteria are desired regarding the shaping of artistic skill, then the behaviors implicit in these areas must also be clearly delineated--and appropriate testing instruments must be specified or developed for their evaluation. Once a relatively precise description is made of the objectives of such a program, evaluative techniques may more readily be selected and appropriate educational techniques employed to achieve them. Confusion of goals, which was experienced during the cooperative effort described in this report, would be less likely to arise if early specification is made of the desired results.

It also appears that, in any future effort, the development of a project's objectives and program should not be carried out in isolation from the question of evaluating the results of the effort. Evaluation must be considered an integral aspect of the program, not a appendage to be added later without regard to its function in education. This was one of the more notable omissions of the project. When objectives and program methods have been determined, the evaluative efforts provide the feedback required for the operational conduct of the program and, in the last analysis, are used to specify the degree to which the program has attained its objectives.

An important consideration within any program such as this, where determination of the project's effectiveness is to be based upon a research strategy of analyzing the scores of groups of children, is that a well formulated research design is employed for the selection of the groups and the analysis of their scores. Such a research design was developed by the CAE research team for use by the Friends/Morgan project staff, but, because of exigencies of selection at the onset of the program, the design and selection procedure was not used. This has resulted in the presentation of data which does not reflect a constructed "experimental/control group" strategy for purposes of isolating relevant educational variables. Although this experimental/control strategy is not the only method of isolating relevant variables, and is certainly not that regarded as preferable by the CAE staff, in this situation it would have been a useful method. Future projects, beside considering group statistical and chance control, could mount significant research based upon operational research methodology, employing each child as his own control from an established baseline of skills and using frequent assessment and feedback of behavioral skills. This would appear to be the more appropriate method, where no appropriate evaluation instrument exists or where those which do exist are questionable. This method provides the ability to assess student skills on a moment-to-moment, behavioral basis.

Unquestionably, one of the tasks implicit in a future project would be the search for evaluation instruments useful in determining both the relationship between artistic behaviors and academic achievement and those effective in evaluating artistic behaviors and academic achievement and those effective in evaluating artistic skills themselves. Operational research methods should prove useful in achieving this end. Further, operational research methods would be amenable for use in the construction and development of such instruments where none exist.

One function of a future project could be a thorough investigation and delineation of the relationship of the "concept theme" thesis to the development of academic skills. The project reported here has exposed this thesis; and the results, although inconclusive, recommend that no immutable conclusions can be reached regarding the efficacy of such organization. It would appear that further investigation of such a program would be worth the effort expended. This does not imply, however, that a program of this type should be advocated as a panacea for educational program deficiencies. Rigorous and scientifically based investigation of this thesis should be the goal. Whatever worthwhile applications can be made of them should be advocated: whatever is found valueless should be discarded.

Ideally, if the arts are to be employed in the shaping of academic skills, investigators should capitalize on the inherent interest of these topics for children and the contact that they make with the children's current skills. Also, if the inherent benefits of artistic involvement are used in programs of this nature, such involvement would be well predicated upon its being contingent upon completion of less interesting but eminently beneficial academically oriented activities. Such a program could easily be formulated and could use the advantages of each type of activity to the benefit of the whole--always directed toward the stated goal of high and well-rounded academic achievement. In consonance with the considerations for specification of objectives and use of evaluation techniques, teachers must also assume responsibility for the results of their learning programs. If teachers are held accountable for these results, when they are insignificant or negative, such consequences may indeed assist in the development of relevant programs. If the teachers are also assisted in the development of appropriate programs through research staff support and the feedback resulting from evaluation procedures, and if positive incentives are offered to the teacher for his performance, the educational system will certainly be the beneficiary. Both procedures, used concurrently, could do much to shape proper learning programs for underachieving students.

During the planning for such subsequent programs, attention should be paid to the efficacy of scheduling class periods in a traditional manner, i.e., one class per hour of program time. Possibly, more appropriate use could be made of flexible scheduling based upon student interest in activities provided within the program. A student could, for example, be permitted to continue in an activity until his interest was sated or the project upon which he was working was completed. Cooperative teacher groups (similar to team-teaching) could be developed in such a program where overlapping artistic skills could be employed. Such cooperative ventures could be designed and overlapping dimensions arranged within the class. This type of structure could preclude the lock-step movement from class to class that typified the Friends/Morgan summer program and could well provide a more appropriate arena for the development of total artistic skill. Extensive "recital sub-projects" which contain numerous smaller artistic elements could be developed where a child could concentrate on one particular artistic skill for the sub-project term or where he could sample a number of different artistic activities during its completion. Whatever the structural organization, attention should be paid to the overt behaviors and requests of the child regarding his involvement with artistic activities. No evidence exists that forced involvement in all artistic activities is more valuable to a particular child than would be his selection of any one activity in particular. The child and his behavior are the most accurate indicator of what reinforces, or interests him, in any curriculum.

In accordance with ascertaining the children's skills at entrance, ongoing investigation should be made of the children's abilities to deal with both concrete and abstract elements relating to the concept themes. Examination should be conducted and specification made of the type of answer formats required for examination of these skills, including multiple-choice selection and constructed responses. Each answer format requires a different set of behaviors for completion and consideration must be given to the differential shaping of each required behavior. Secondarily, the degree to which each type of behavior required in these solutions is relevant to the development of general academic skill should be investigated.

Another recommendation that deserves consideration is to plan for a summer program which lasts for more than six weeks. It was evident in this last project that the students and teachers were at a significant crossroad when the project ended. The pre-determined route taken was to terminate involvement and this could well have broken an appropriate educational chain developed during the project. Many teachers felt that they were at the point of being able to achieve significant educational progress with the children at the project termination. A longer summer program involvement need not be either taxing or boring for the children--provided appropriate activities are developed. It could serve to test the effect of a longer exposure and more lengthy behavioral shaping on the children's behavior following their return to school.

The use of the Sidwell-Friends school facilities was an asset to the recent summer project, in that it provided a refreshing physical and environmental change for the children. An alternate view, worthy of consideration, would be to employ the talents of project personnel and the funds available through the project to create stimulating environments within the school facilities normally used by the children. This would have the added value of providing residual products for the normal academic year (to the extent that the project was designed to produce them) to be used by teaching personnel in their program. Further, supplementary materials and services used in the summer project could produce a more dramatic effect on the educational environment when employed in a school facility well known to the children. In the same vein, it may be more beneficial to employ a greater proportion of teachers (particularly arts teachers) from the ghetto schools, even if there would be more training required to achieve maximum proficiency in the skills they would require to perform in the summer program. Ideally, these teachers could all be drawn from the school selected for the operation of the summer program. They could then be at an advantage in planning innovative procedures and programs during the normal academic year.

Another advantage of locating the project in a ghetto school could be found in added feasibility to interest and involve the students' parents in the program. Parents who had an interest in their children's school would, of course, find it easier to attend and participate in meetings regarding the summer program if the school facility that housed it was in the local community. Greater emphasis should also be placed upon the involvement of the parents in the summer program and more frequent contact should be planned than was evidenced during the program reported here. Functional feedback procedures should be developed to insure that the parents are both informed of their children's progress and able to recommend modification of the program in progress. Enlisting the support and assistance of the parents through these meetings, permitting them to participate in the daily program efforts, and reinforcing their involvement with appropriate incentives would be a crucial element in a future program.

Finally, maintenance of liaison with the existing school administrators and local community leaders cannot be overemphasized. Care should be taken to insure that project personnel are apprised of (if not involved in) planning regarding major modification of the educational programs of the school within which the project is operating. If major revisions to procedures and curriculum are instituted (such as those effected by Antioch College at the Morgan School during the last summer project) project personnel will, at least, be able to organize procedures, curriculum, and research designs to accomodate changes in full-year school policy. It is, in the most direct sense, the duty of any such project to work with the school's procedures and to provide the cooperating school administrators with effective procedures which will benefit the school and each of its students.

APPENDIX 1

BIBLIOGRAPHY OF MATERIALS USED FOR FRIENDS/MORGAN STAFF TRAINING SESSIONS

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Films and Visuals

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"Evaluation." A filmstrip-tape program produced by Vimcet Associates, Los Angeles, California, 1967.

"Experimental Freshman Year." A slide presentation on a demonstration project at Southern Illinois University, Carbondale, Illinois, 1964.

"Manscape." A 3-screen slide presentation and narrative presented at the Environmental Planning for Edwardsville Campus Conference, Southern Illinois University, 1962.

"Selecting Appropriate Educational Objectives." A filmstrip-tape program produced by Vimcet Associates, Los Angeles, California, 1967.

APPENDIX 2

RECORDING FORMS

HOME ROOM SHEET

DATE____________________

CLASS______________ TEACHER____________________ INTERN____________________

NAME	NOTES ON STUDENT*

*Please indicate any abnormal activity, or condition of each child during the homeroom period (e.g., sleepy, loud and vulgar, didn't finish milk, cut and bruised, had fight, broken arm in cast, etc.).

CLASS PARTICIPATION RECORDING SHEET

CLASS ________ GRADE ________

DATE ________ HOUR ________

TEACHER________ INTERN________

PHOTO TAKEN OF CLASS: ☐ Yes ☐ No

OBJECTIVES: ____

____

____

ACTIVITIES: ____

____

____

				TIME		TASKS	
Student	Check In	Notes on Disruption	Minutes of no Participation	Total Non-Active	Most Active	Completed	Photo
			5 5 5 5 5 5 5 5				
			5 5 5 5 5 5 5 5				
			5 5 5 5 5 5 5 5				
			5 5 5 5 5 5 5 5				
			5 5 5 5 5 5 5 5				
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			5 5 5 5 5 5 5 5				

CLASS EVALUATION SHEET

PRE-CLASS

CLASS ____________________ GRADE ____________________

DATE ____________________ HOUR ____________________

TEACHERS ____________________ AND ____________________

CLASS OBJECTIVES ____

____

RELATIONSHIP TO WEEKLY OBJECTIVES ____

____

RELATIONSHIP TO OTHER CLASSES/SUBJECTS ____

____

- -

AFTER CLASS

HOW DID THIS CLASS GO, GENERALLY?

/5/PERFECTLY /4/VERY WELL /3/MODERATELY WELL /2/PASSABLY /1/POORLY

BEST ACTIVITIES ____

WHAT WOULD YOU ELIMINATE? ____

____

____

____

WHAT WOULD YOU STRESS MORE? ____

____

____

____

ACTIVITIES CALLED FOR BUT NOT DONE ____

WHEN WILL YOU COVER THESE? ____

WHAT NEW (DIFFERENT) ACTIVITIES WOULD YOU INCLUDE HERE? ____________________

____

____

CLASS EVALUATION SHEET -- Page 2

DURING CLASS

CLASS ACTIVITIES
AND MATERIALS EMPLOYED ______________________________

____

ACTIVITIES/MATERIALS CHILDREN FIND EASY ______________________________

____

ACTIVITIES/MATERIALS CHILDREN FIND DIFFICULT ______________________________

____

QUESTIONS FROM STUDENTS
BY QUALITY OF QUESTION

TALLY BOX

GOOD	AVERAGE	POOR

TOTALS

G	A	P

MOST FREQUENTLY ASKED QUESTIONS
BY CATEGORY (e.g., PROCEDURAL,
SUBJECT MATTER)

1st ______________________________
2nd ______________________________
3rd ______________________________

PROCEDURE FOR EVALUATION ______________________________

____

CLASS NOTES ______________________________

____

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CLASS EVALUATION SHEET -- Page 3 **ANECDOTAL RECORD**

STUDENTS PARTICIPATING BEST. WHY? ______________________________

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____

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STUDENTS PARTICIPATING POORLY. WHY? ____________________________

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CLUB PARTICIPATION RECORDING SHEET

CLUB: ______________________

DATE: ______________________

LEADER: ______________________

INTERN: ______________________

PHOTO TAKEN OF CLUB: YES_____ NO_____

OBJECTIVES: ______________________

____

____

ACTIVITIES: ______________________

____

____

				TIME		TASKS	
STUDENT	CHECK IN	NOTES ON DISRUPTIONS	MINUTES OF NO PARTICIPATION	TOTAL NON-ACTIVE	MOST ACTIVE	TASKS COMPLETED	PHOTO
			5 5 5 5 5 5 5 5 5 5 5 5 5				
			5 5 5 5 5 5 5 5 5 5 5 5 5				
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			5 5 5 5 5 5 5 5 5 5 5 5 5				

ARTIST TEACHER FORM (FOR CLASS USE):

CLASS ____________________ GRADE ____________________

TEACHER ____________________ DATE ____________________

OBJECTIVES AND ACTIVITIES FOR CLASS (LIST CHRONOLOGICALLY WITH ACTIVITY LAST). YOUR MAIN CONCERN SHOULD BE THE OBJECTIVES - A BRIEF NOTE ON ACTIVITIES WILL DO.)

1. (OBJECTIVE) ____________________
   ____
   ____________________ (ACTIVITY) ____________________
2. (OBJECTIVE) ____________________
   ____
   ____________________ (ACTIVITY) ____________________
3. (OBJECTIVE) ____________________
   ____
   ____________________ (ACTIVITY) ____________________
4. (OBJECTIVE) ____________________
   ____
   ____________________ (ACTIVITY) ____________________

NOTES: ____________________

CLASS AND CLUB TEACHER RECORDING FORM

CLASS OR CLUB ______________________ DATE ______________________

GRADE ______________________ HOUR ______________________

TEACHERS: ______________________ AND ______________________

I. ACTIVITIES OF TODAY:
1. ______________________
2. ______________________
3. ______________________
4. ______________________
5. ______________________
6. ______________________

IN TERMS OF CLASS PARTICIPATION:
Check (✓) the most effective activities.
Put a cross (X) by the least effective. Why least effective? ______________________

____

______________________.

Easy activities for children (circle them): 1 2 3 4 5 6
Difficult activities for children (circle them): 1 2 3 4 5 6
Most absorbing activities for children (circle them): 1 2 3 4 5 6

II. QUESTIONS (Put X in appropriate box):

Quantity asked:	Many	Some	Few	None

Quality asked:	Thoughtful	Attempting to be Thoughtful	Ordinary	Inappropriate

Examples of questions asked today: ______________________

____

____

III. NEW CONCEPTS AND/OR VOCABULARY INTRODUCED TODAY: ______________________

____

____

IV. PROBLEM SOLVING:

Examples of problem posed: ______________________

____

Examples of solutions: ______________________

____

CLASS AND CLUB TEACHER RECORDING FORM -- page 2

V. ANECDOTES AND YOUR NOTES: ____________________

APPENDIX 3

DAILY TESTS

NOTE: The "white dots" referred to in the test instructions for some days are self-adhesive labels, ½ inch diameter. When the test instructions mention red arrows, circles, etc., the stencils were actually printed in red ink, and references to a blue ot pink second sheet occur on days when self-carbonating paper was used for the test, permitting the children to keep a copy of their work.

SURPRISE TIME INSTRUCTIONS: June 26, 1967

1. Introduce yourself to the children and explain Surprise Time: "During this period every day we'll have a surprise -- some days it will be a game on paper, some days a game like 'Simon Says.' We'll make this a fun time. Every day we'll get soemthing in an envelope -- that will be the 'surprise.' Now, let's get the envelopes."

2. Pass out the envelopes and say "Don't open them until I tell you to." When everyone has an envelope, say "Alright, open your envelope and take out the pencil and the name tag. Put the name tag on the front of the envelope and write your name on it. (Interns help here.) When you finish, put the pencil back inside the envelope and pass it in.

3. Play "Simon Says" until 5 minutes before end of period. (Circle, facing out, eyes closed, is first "Simon Says.")

4. Juice.

TEST INSTRUCTIONS: June 27, 1967

A. Remove your sheets and pencils from your envelopes and place them on the table in front of you.

B. In the blank space next to the picture of the safety pin, write the answer to this question: What is your first name?

C. In the blank space next to the picture of the pitcher, write the answer to this question: What is your last name?

D. In the blank space next to the picture of the chair, write the answer to this question: How old are you?

E. In the blank space next to the picture of the star, write the answer to this question: When is your birthday (or when will you be a year older)?

GROUPS 1 and 2

F. In the blank space next to the picture of the flower, write the answer to this question: What street do you live on?

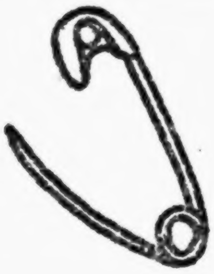
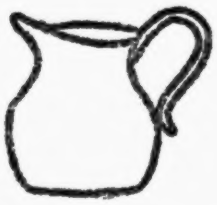
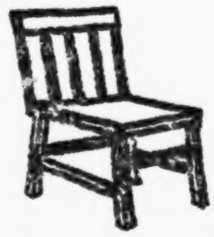
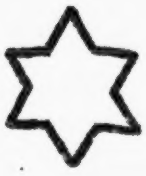
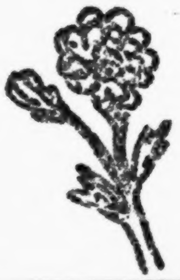
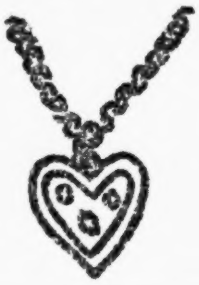
G. In the blank space next to the picture of the locket, write the answer to this question: Do you know your house number? What is it?

GROUPS 3 and 4

F. In the blank space next to the picture of the flower, write the answer to this question: What is your address (or what is your house number and the name of your street)?

G. In the blank space next to the picture of the locket, write the answer to this question: What is the name of this city--the one we live in?

When you finish, put your sheets and pencils back in the envelopes and pass them in.

TEST INSTRUCTIONS: Wednesday, June 28, 1967

1. First, take out of the envelope the two sheets with the pictures on them.

2. Place them on the floor in front of you with the picture of the airplane on top.

3. Next, find the strip of paper with the round white dots.

4. Now take just one of the dots from the strip. They peel off easily. You will place this dot on the picture that answers the question I will ask.

5. Find the airplane. There are two children on a see-saw in the next box. Place the dot on the child up in the air.

   Next, find the tree. In the box next to it, place a dot on the snake that is around the box.

   Find the cup. In the box next to it place a dot on the ball that is going across.

   Find the dog. In the box next to it, place a dot on the bird under the limb.

   Find the ambulance. In the box next to it, which box has a ball inside of it? Place a dot on it.

   Find the book. In the box next to it, which table has a ball on top of it (or on it)?

   Now, turn to the next page -- the one with the bird in the first box. Place a dot on the truck coming out of the tunnel.

   Find the flower. In the box next to it, place a dot on the children who are together.

   Find the soldier. In the box next to it, place a dot on the open box.

   Find the glasses. In the box next to them, place a dot on the boy at the bottom of the stairs.

   Find the telephone. In the box next to it, place a dot on the box that is full.

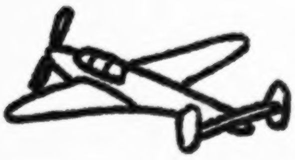
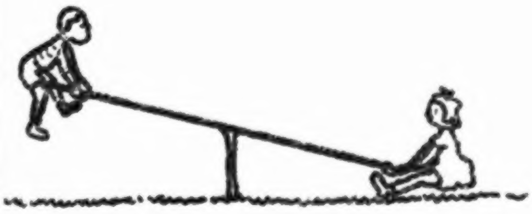
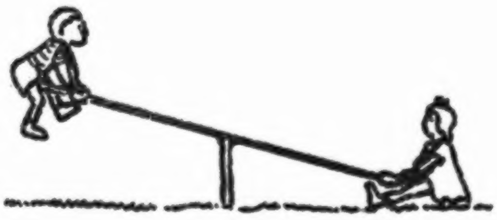
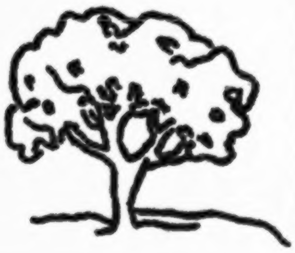
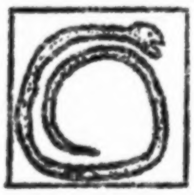
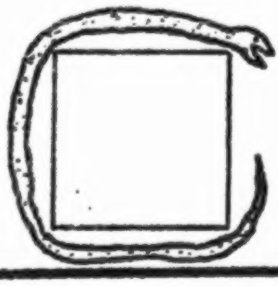
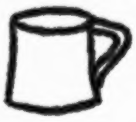
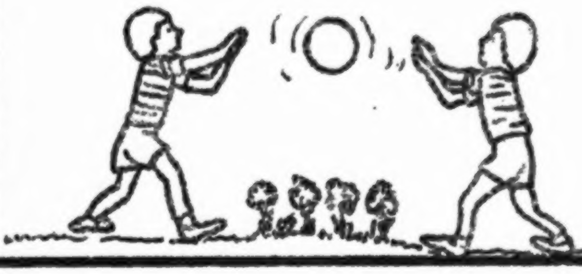
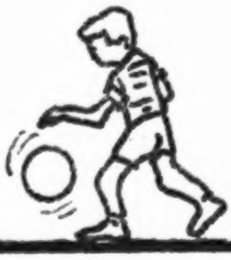
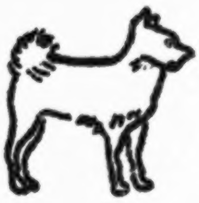
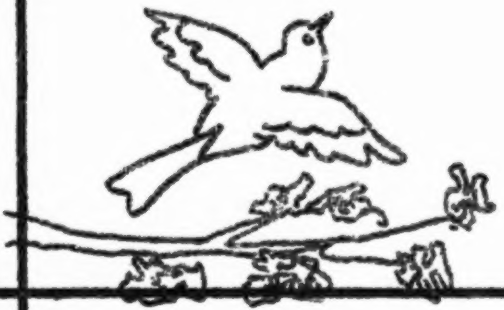
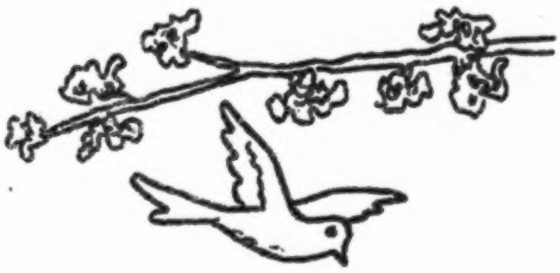
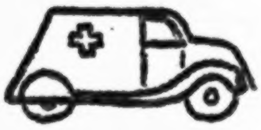
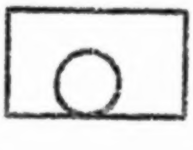
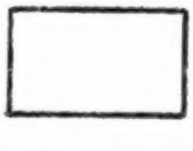
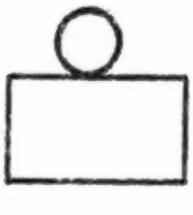
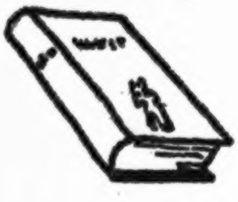
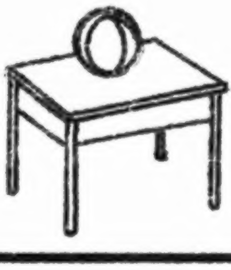
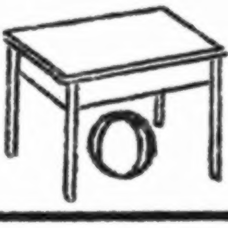
   Find the umbrella. In the box next to it, place a dot on the railroad car that comes before the caboose.

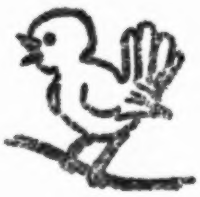
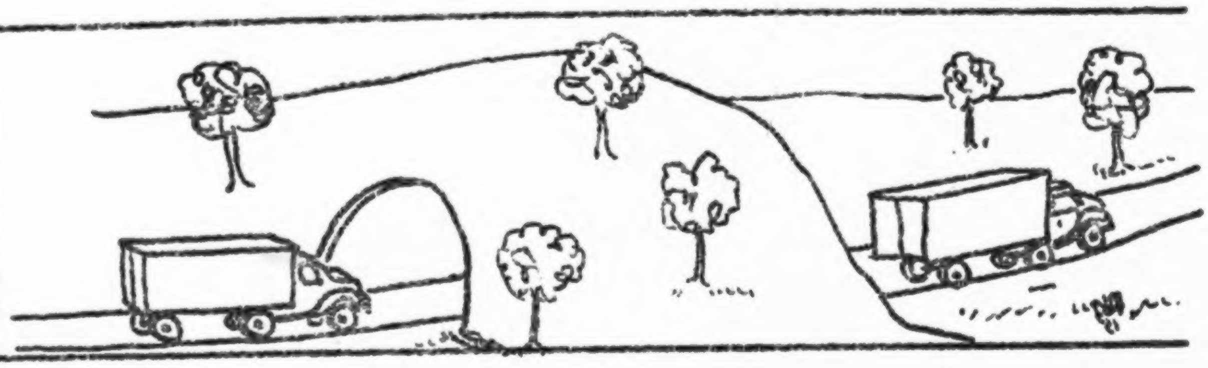
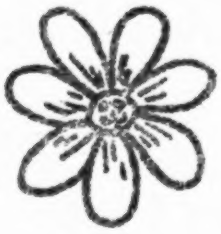
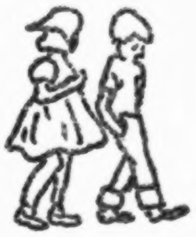
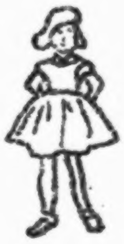
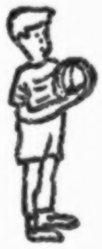
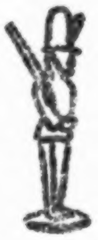
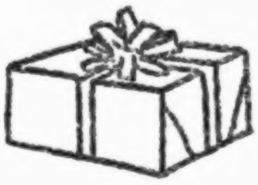
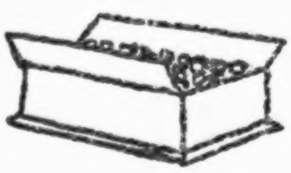
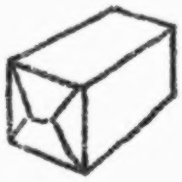
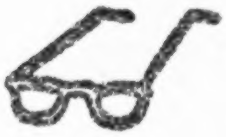
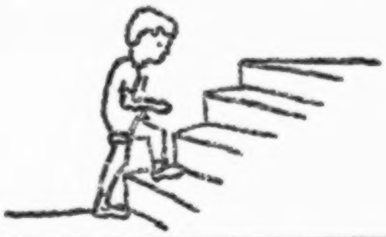
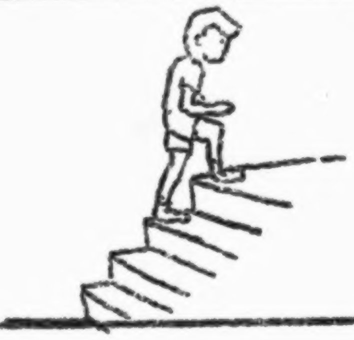
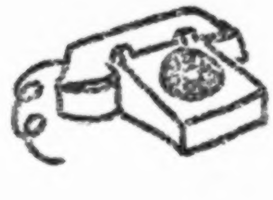
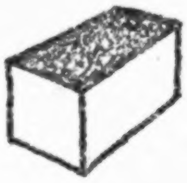
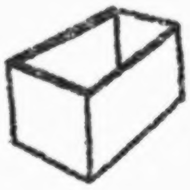
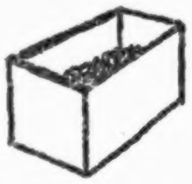
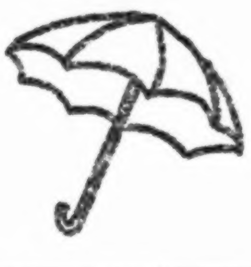
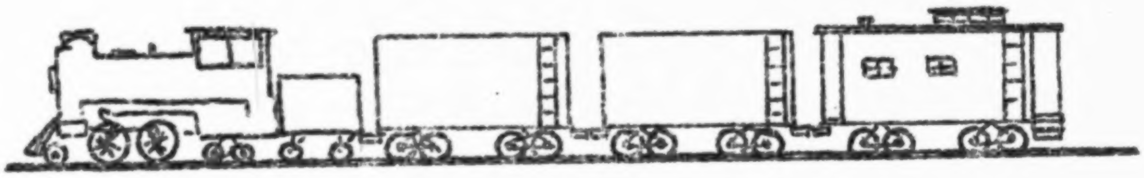
   CLOSE YOUR BOOKLET.

   Find the pencil in your envelope.

   Print your name clearly on the top of the first page.

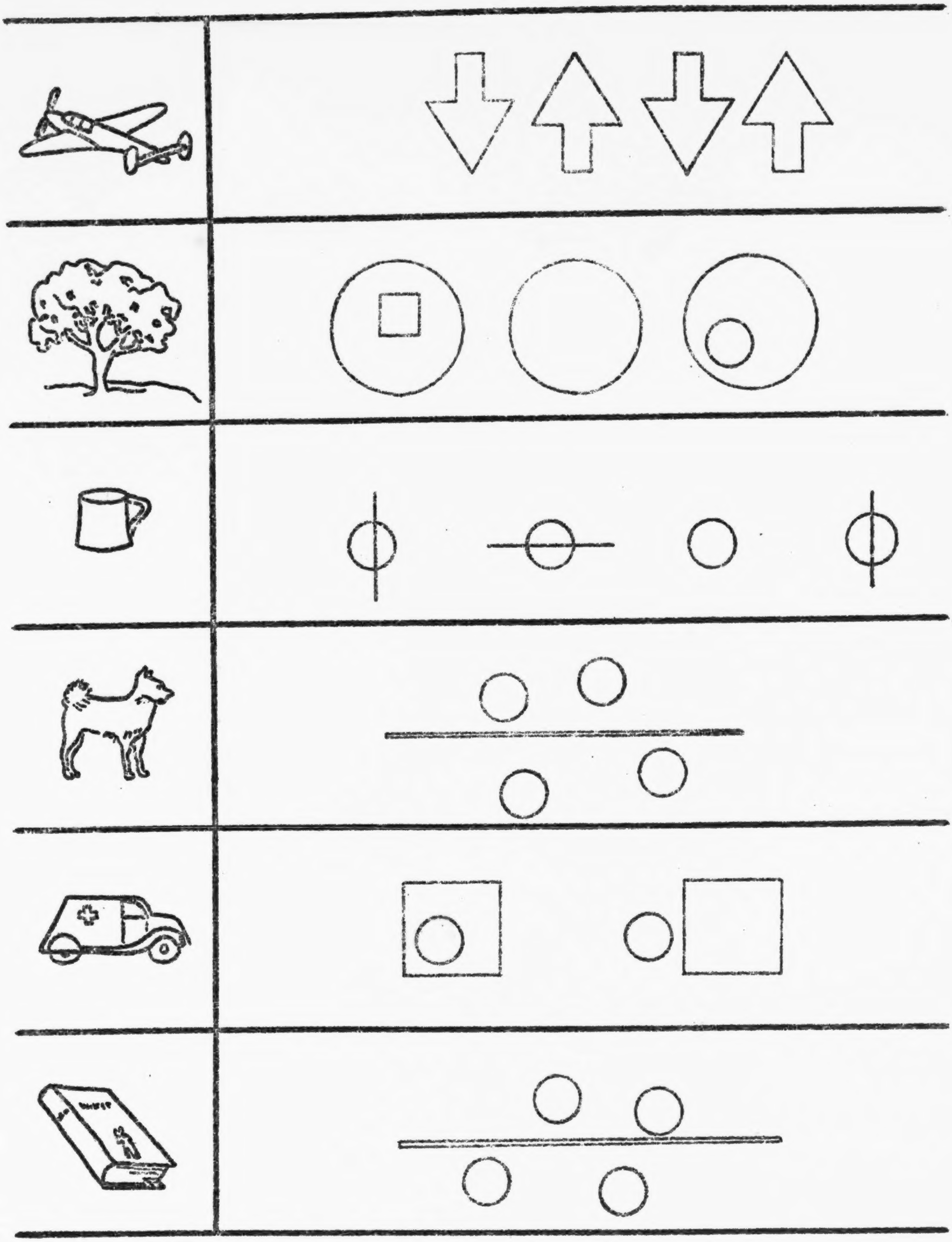
   When you finish, place the booklet and pencil in your envelope.

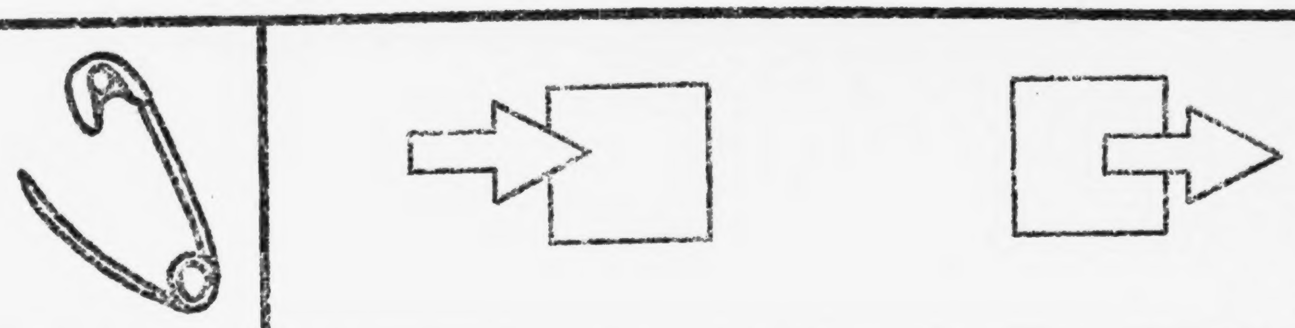




















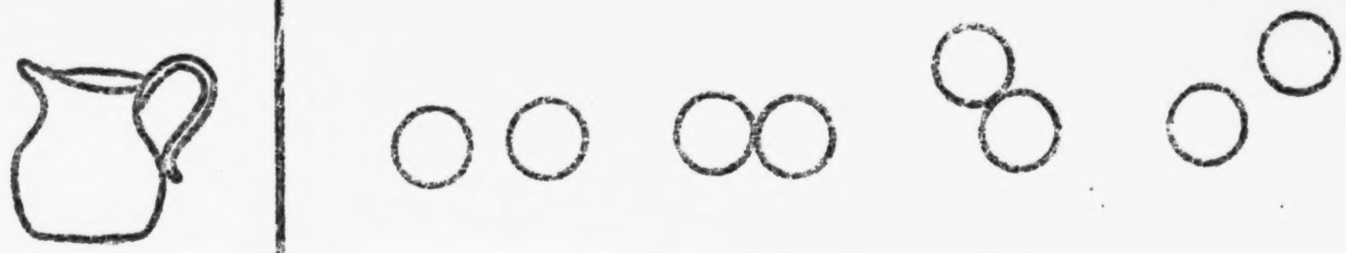




















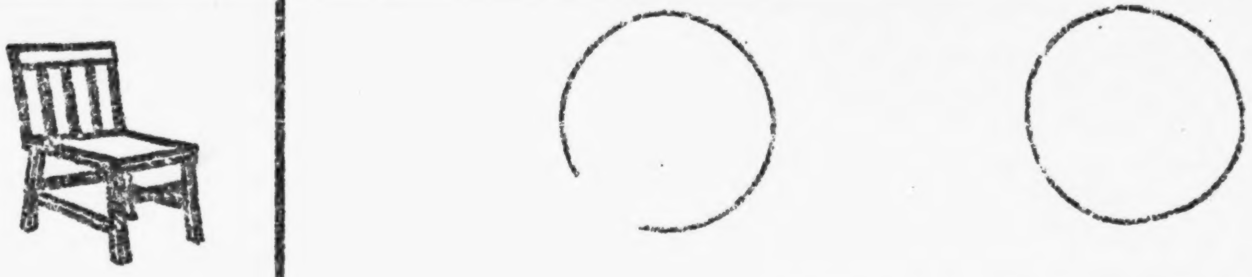
TEST INSTRUCTIONS: Thursday, June 29, 1967

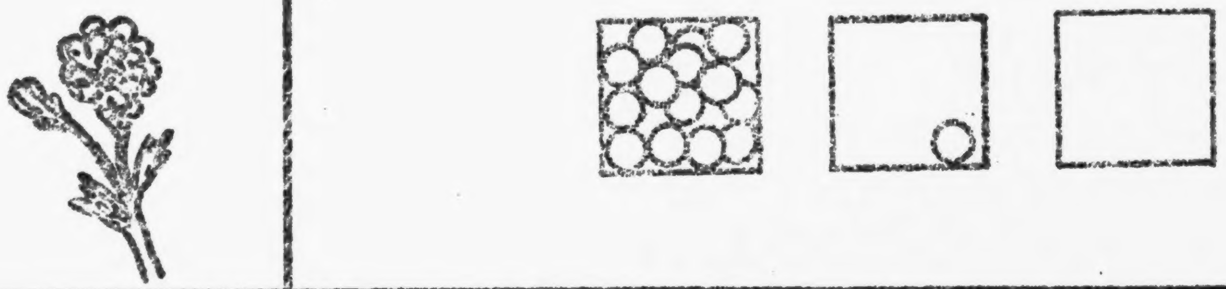
1. First, remove the pencil and the two sheets from your envelope.
2. Place them on the floor in front of you with the picture of the airplane on top.
3. Find the airplane. In the box next to it, draw a circle around the arrows that point up.
4. Find the tree. In the box next to it, put a mark on the figure with a circle around it.
5. Find the cup. In the box next to ti, put a mark on the figure with a line across it.
6. Find the dog. In the box next to it, color the circles under the line.
7. Find the ambulance. In the box next to it, which box has a ball inside it? Mark that box.
8. Find the book. In the box next to it, color the objects on top of the line.
9. Now turn to the next page. Do you see the pin in the first box? In the box next to it, make a cross mark on the box with the arrow coming out of it.
10. Find the pitcher. In the box next to it, make a mark on the balls that are together.
11. Find the chair. In the box next to it, make a cross in the open circle.
12. Find the star. In the box next to it, make a mark on the figure that is open at the bottom.
13. Find the flower. In the box next to it, make a mark on the box that is full.
14. Find the locket. In the box next to it, make a mark on the circle that comes before the arrow.
15. CLOSE YOUR BOOKLET.
16. Print your first and last name clearly on the top of the first page.
17. When you finish, place the booklet and pencil in your envelope.

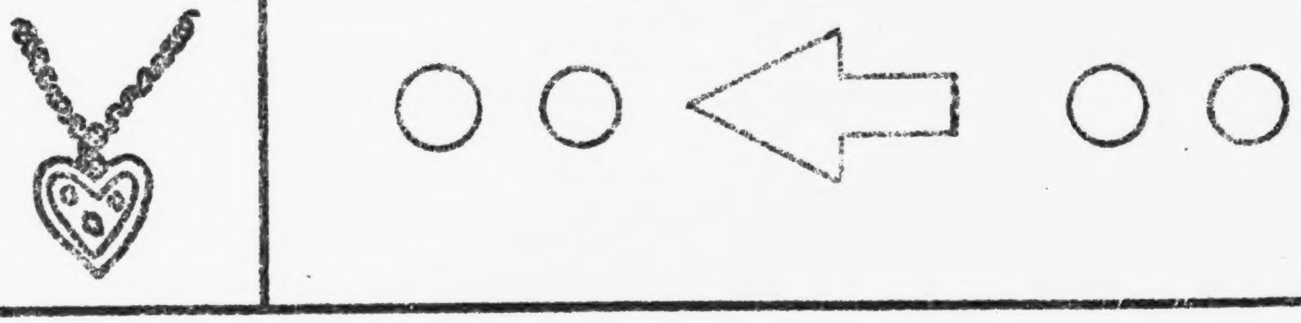












TEST INSTRUCTIONS: Friday, June 30, 1967

1. First, remove the pencil and the sheets from your envelope.

2. Place them on the floor in front of you with the picture of the bird on top.

3. Find the bird in the little box at the top of the page. In the box beside it put your pencil in the circle and draw a line up.

4. Find the flower. In the box next to it, draw a circle around the box.

5. Find the soldier. In the box next to it, draw a line across the circle.

6. Find the glasses. In the box next to it, draw a circle under the line.

7. Find the telephone. In the box next to it, place an X inside the small box.

8. Find the unbrella. In the box next to it, write your name on the top of the line.

9. NOW TURN THE PAGE. Find the airplane. In the box next to it, draw an arrow that comes out of the small red box.

10. Find the tree. In the box next to it, draw two more circles together with the red circle.

11. Find the cup. In the box next to it, draw a circle, but leave it open.

12. Find the dog. In the box next to it, draw a box using the red line as the bottom.

13. Find the ambulance. In the box next to it, fill the small red box with rocks.

14. Find the book. In the box next to it, draw a circle before the red arrow.

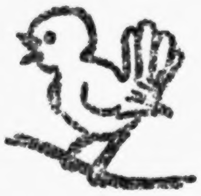
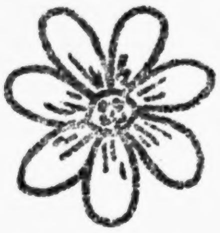
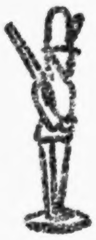
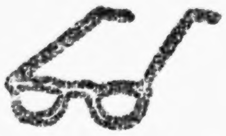
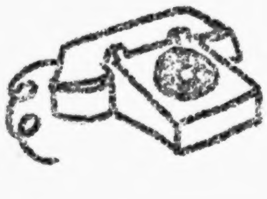
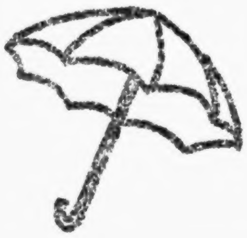
Third and Fourth Groups:

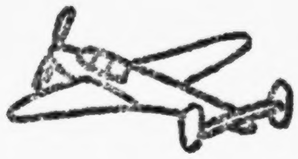
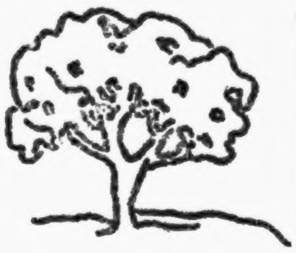
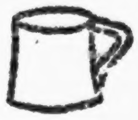
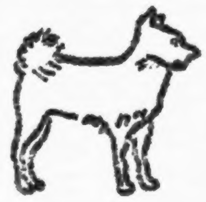
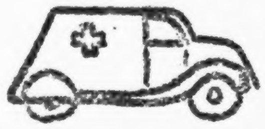
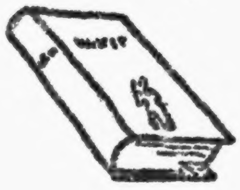
15. NOW TURN TO THE NEXT PAGE. Find the safety pin. In the box next to it, mark the compass points North, South, East and West.

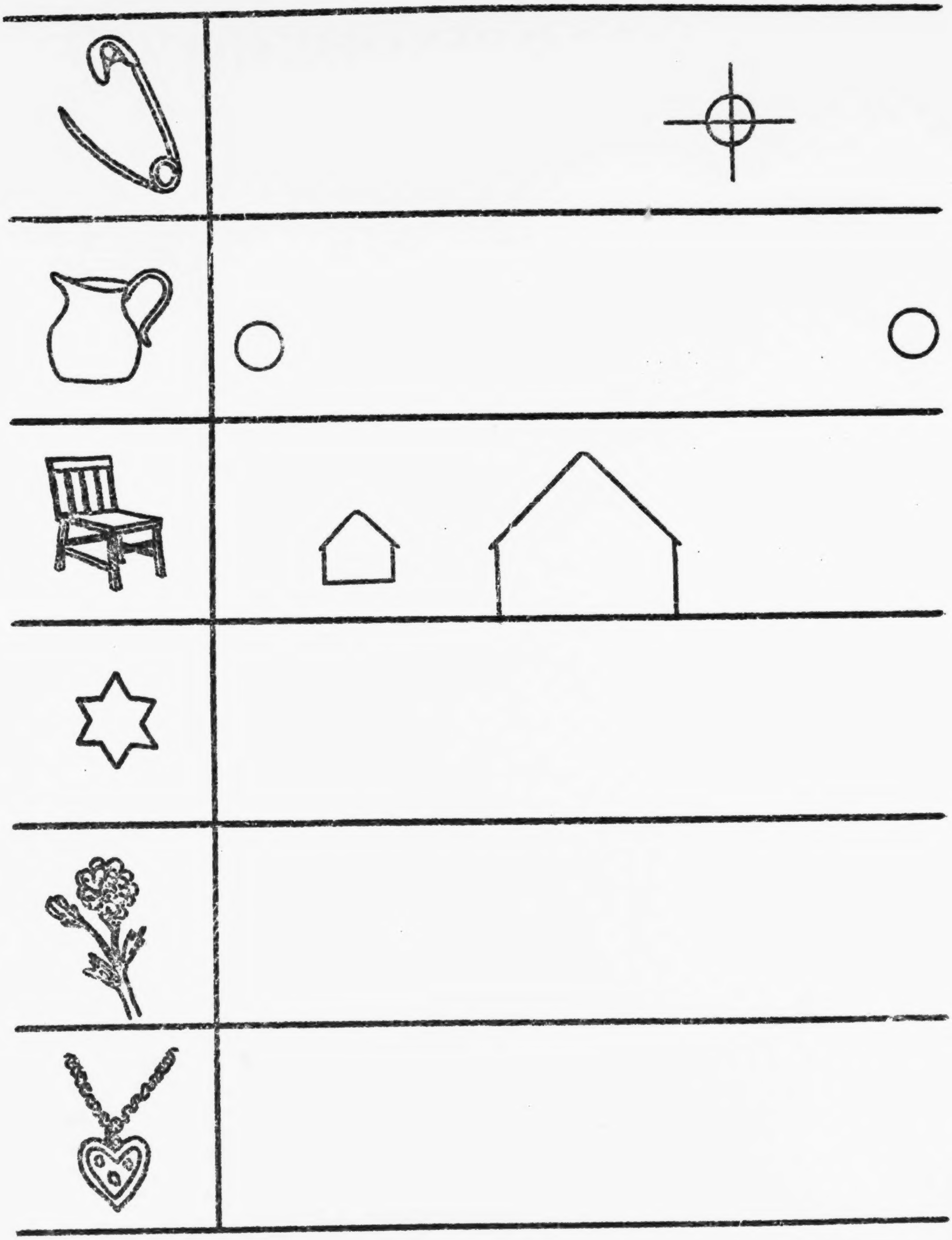
16. Find the pitcher. In the box next to it, fill the circle on the left.

17. Find the chair. In the box next to it, place a cross on the shape that seems near.

18. Return your sheets and pencils to the envelope.

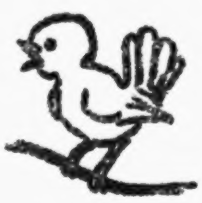
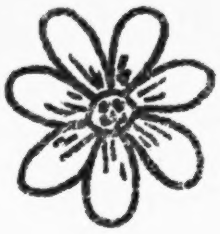
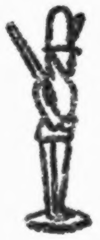
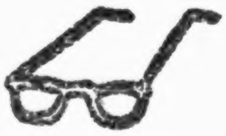
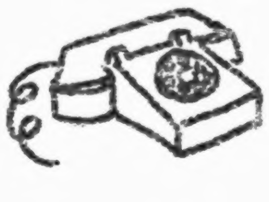
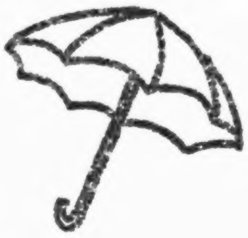
	○
	□
	○
	______
	□
	______

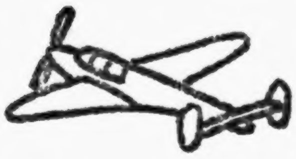
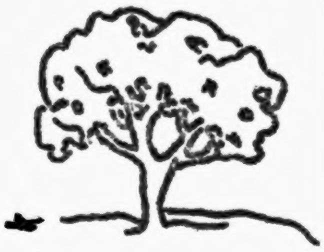
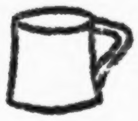
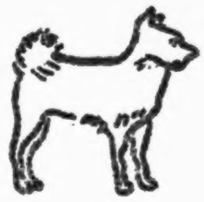
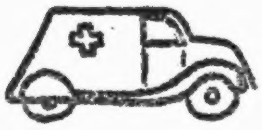
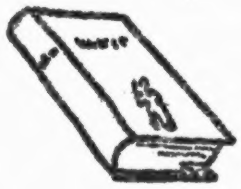
	□
	○
	
	—
	□
	⇨



TEST INSTRUCTIONS: Wednesday, July 5, 1967

1. First, remove the pencil and the sheets from your envelope.
2. Place them on the floor in front of you with the picture of the bird on top.
3. Find the bird in the little box at the top of the page. In the box beside it put your pencil in the circle and draw a line down.
4. Find the flower. In the box next to it, draw a circle within the box.
5. Find the soldier. In the box next to it, draw a line across the circle.
6. Find the glasses. In the box next to it, draw a circle above the line.
7. Find the telephone. In the box next to it, place a ball outside the small box.
8. Find the umbrella. In the box next to it, write your name below the line.
9. NOW TURN THE PAGE. Find the airplane. In the box next to it, draw an arrow that goes into the small red box.
10. Find the tree. In the box next to it, draw another circle apart from the red circle.
11. Find the cup. In the box next to it, draw a closed circle.
12. Find the dog. In the box next to it, draw a box using the red line as the top.
13. Find the ambulance. In the box next to it, fill the small red box with rocks. Now draw another box next to it empty.
14. Find the book. In the box next to it, draw a circle after the red arrow.
15. Return your sheets and pencils to the envelope.

	○
	□
	○
	____________
	□
	____________

	□
	○
	
	—
	□
	⇦

TEST INSTRUCTIONS: THURSDAY, JULY 6, 1967

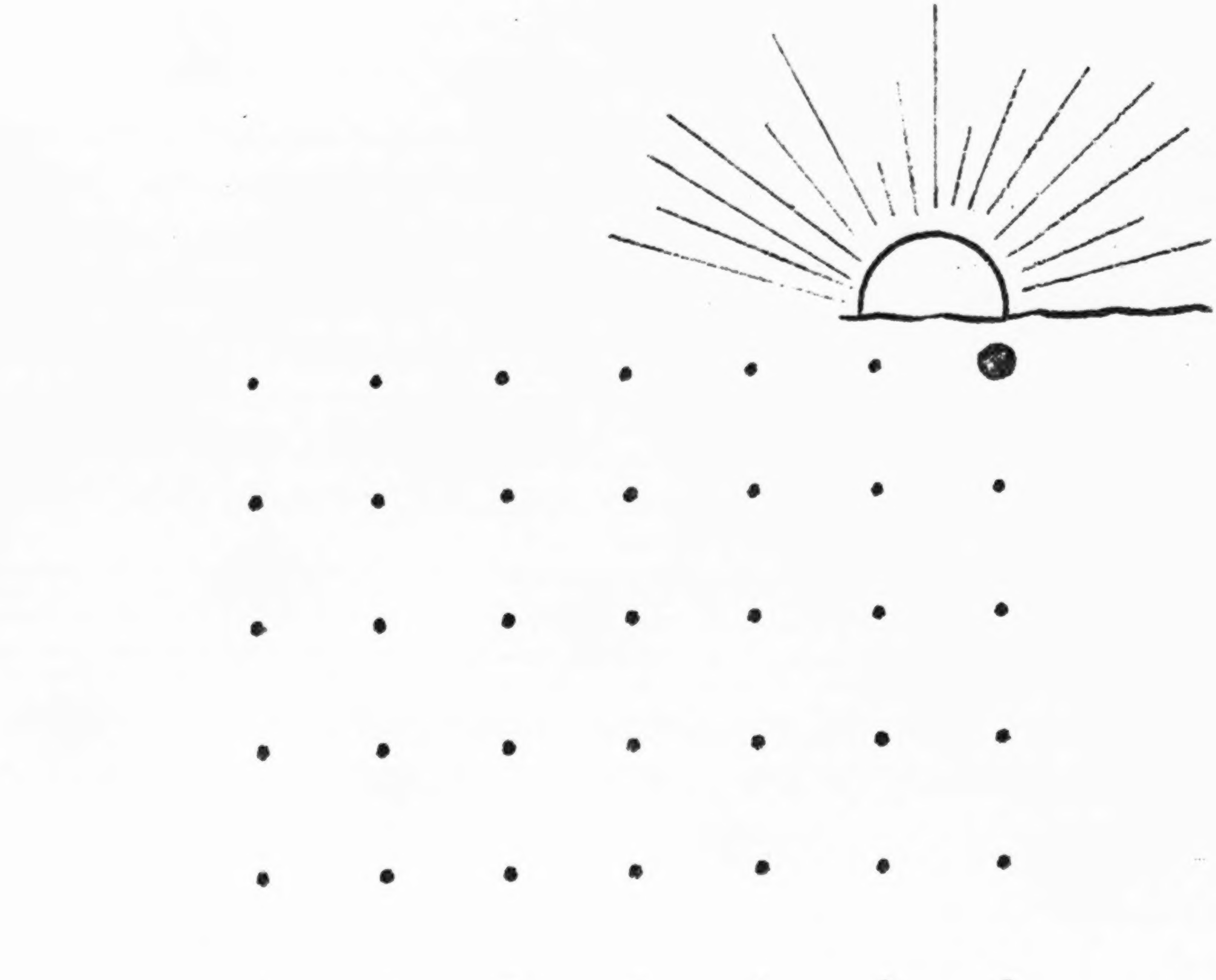
1. First, remove the sheets and pencil.
2. Place them on the floor in front of you with the white sheet on top.
3. Write your name in the upper left hand corner of the page.
4. Write your age (how old you are) in the lower right hand corner of the page.

NOW LISTEN TO THIS STORY

5. A ship has been caught in a heavy storm. The compass is broken and the captain does not know the way to port. We can save the ship and its crew if we listen carefully to the directions for leading them toward calm waters and fair and sunny weather.

   TO FOLLOW DIRECTIONS AND GUIDE YOUR SHIP:

6. You will place your pencil on a dot and will count the number of dots in the directions radiod by the Coast Guard. [Have students indicate their right hands and left hands.]
7. Place your pencil on the large dot above the ship.
8. Draw a hard straight line to the right 4 dots. Make that dot larger.
9. Now, go up 3 dots. Make that dot larger.
10. Go 2 dots to the left. Make that dot larger.
11. Go down one dot. Make that dot larger.
12. Go left one dot. Make that dot larger.
13. Go up to the top dot in that line. Make that dot larger.
14. Draw the line 2 dots to the right. Make that dot larger.
15. Go down 5 dots. Make that dot larger.
16. Go across to the last dot on that line. Make that dot larger.
17. Go up three dots. Make that dot larger.
18. Go to the left two dots. Make that dot larger.
19. Go up two dots. Make that dot larger.
20. Go two dots to your right.
21. Did you make heavy, dark lines?
22. Make sure your name is on the sheet.
23. We have a surprise for you today. Pull the top white sheet off.
24. Place the pink sheet and the pencil in your envelope and you can keep the white sheet for yourself.



TEST INSTRUCTIONS: Friday july 7,1967

A. First, remove the pencil and the sheets from your envelope.
B. Place them on the floor in front of uou with the picture of the pin
at the top.   1

1. Find the pin. Make a mark on the large square.

2/ Find the pitcher. Make a mark on the long line.

3. Find the chain. Make a mark on the tiny triangle.

4. Find the star. Make a mark on the shortest column

5. Find the flower. Make a mark on the box with more in it.

6. Find the locket. Make a mark on the biggest circle.

TURN THE PAGE PLEASE

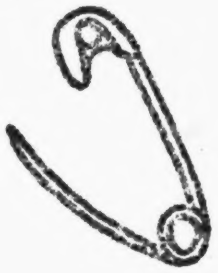
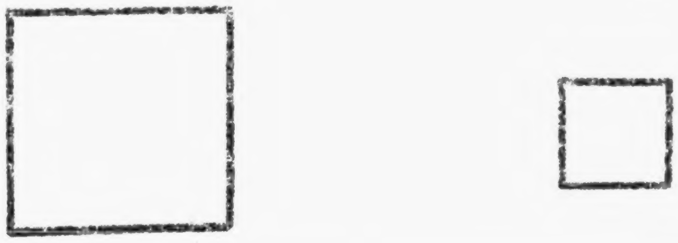
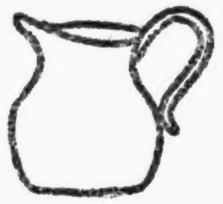
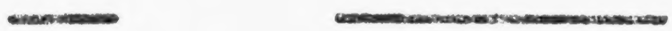
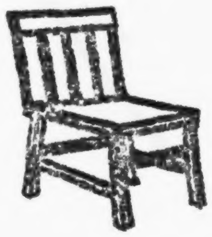
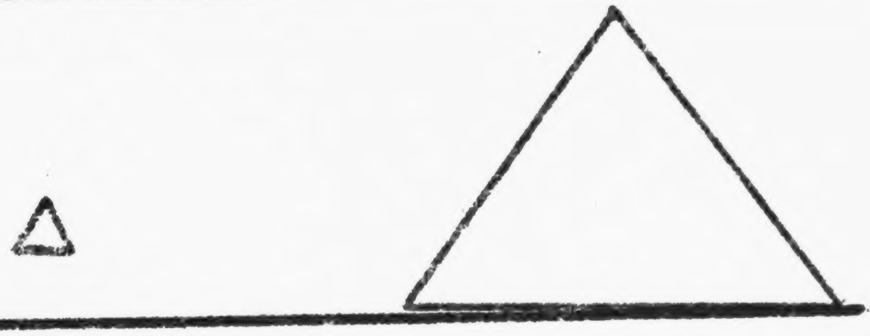
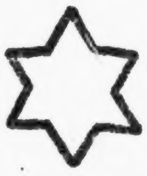
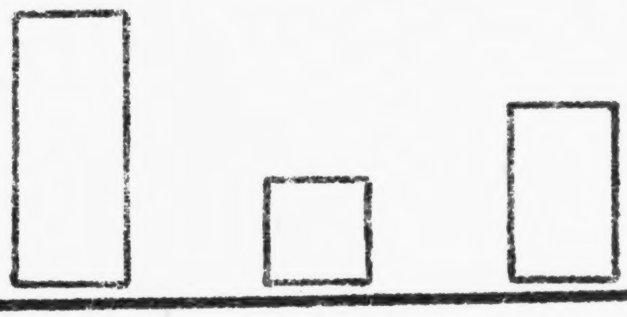
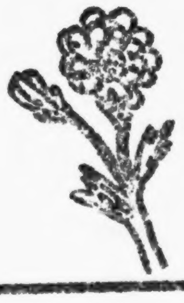
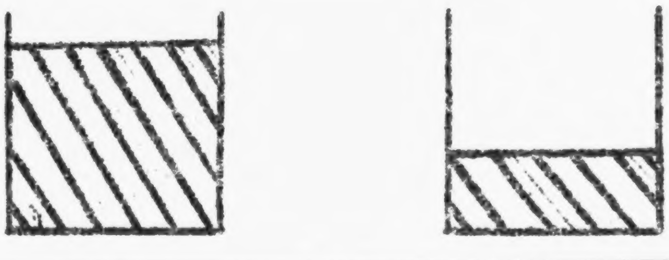
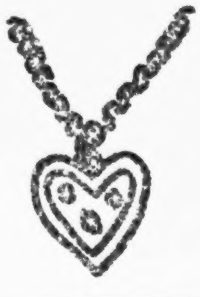
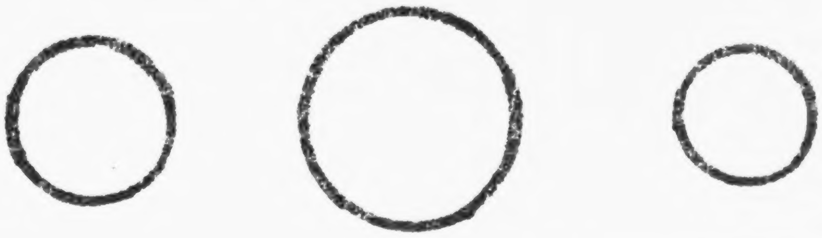
7. Find the airplane. In the box next to it there are 2 circles.
Mark the one with the greater part-Greater amount--colored in.

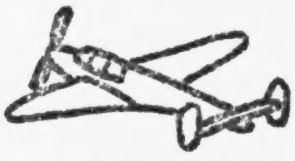
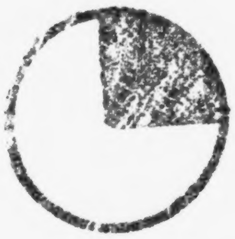
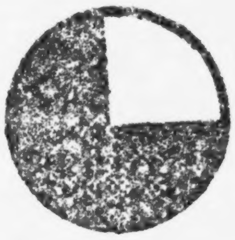
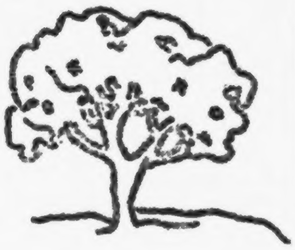
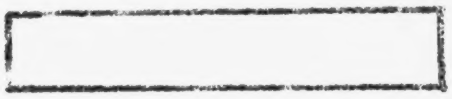
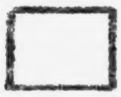
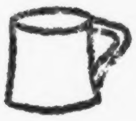
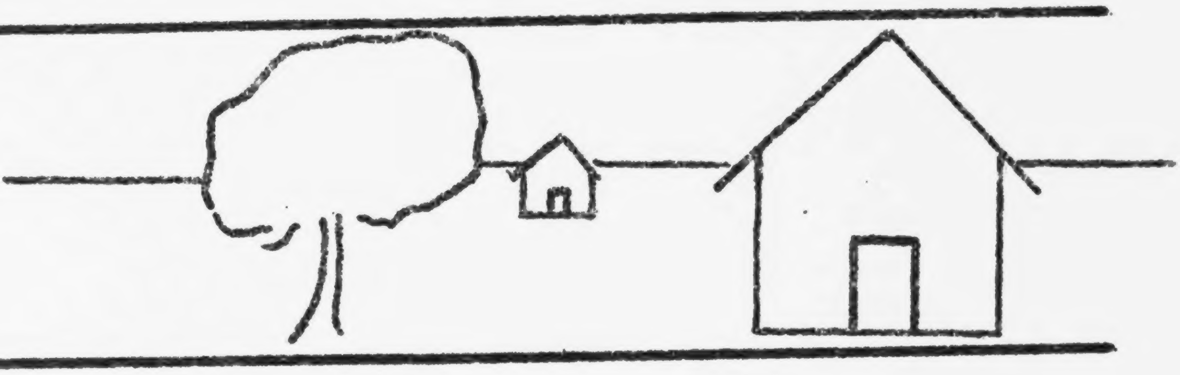
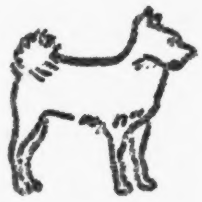
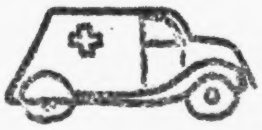
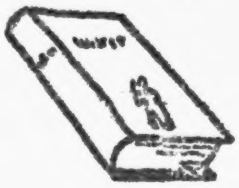
8. Find the tree. Mark the narrow box.

9. Find the cup. Make a mark on the house that seems nearest.

10. Find the 'dog. In the box next it, write your name as tall (large) as the box will let you...

RETURN YOUR PENCILS AND SHEETS TO YOUR ENVELOPES.

TEST INSTRUCTIONS: Monday, July 10, 1967

REMOVE THE SHEETS AND PENCILS FROM YOUR ENVELOPES AND PLACE THEM ON THE FLOOR IN FRONT OF YOU.

1. Find the bird. In the space next to it there is a large square. Draw a small one.

2. Find the flower. In the space next to it there is a long line. Draw a short one.

3. Find the soldier. In the space next to it there is a tiny triangle. Draw a huge one.

4. Find the eyeglasses. In the space next to it there are two columns. Draw a column taller than the others.

5. Find the telephone. In the space next to it there are two boxes -- one empty, one partly filled. Fill the empty one with less than the partly filled one.

6. Find the umbrella. In the space next to it put a mark on the triangle near the circle.

NOW TURN THE PAGE.

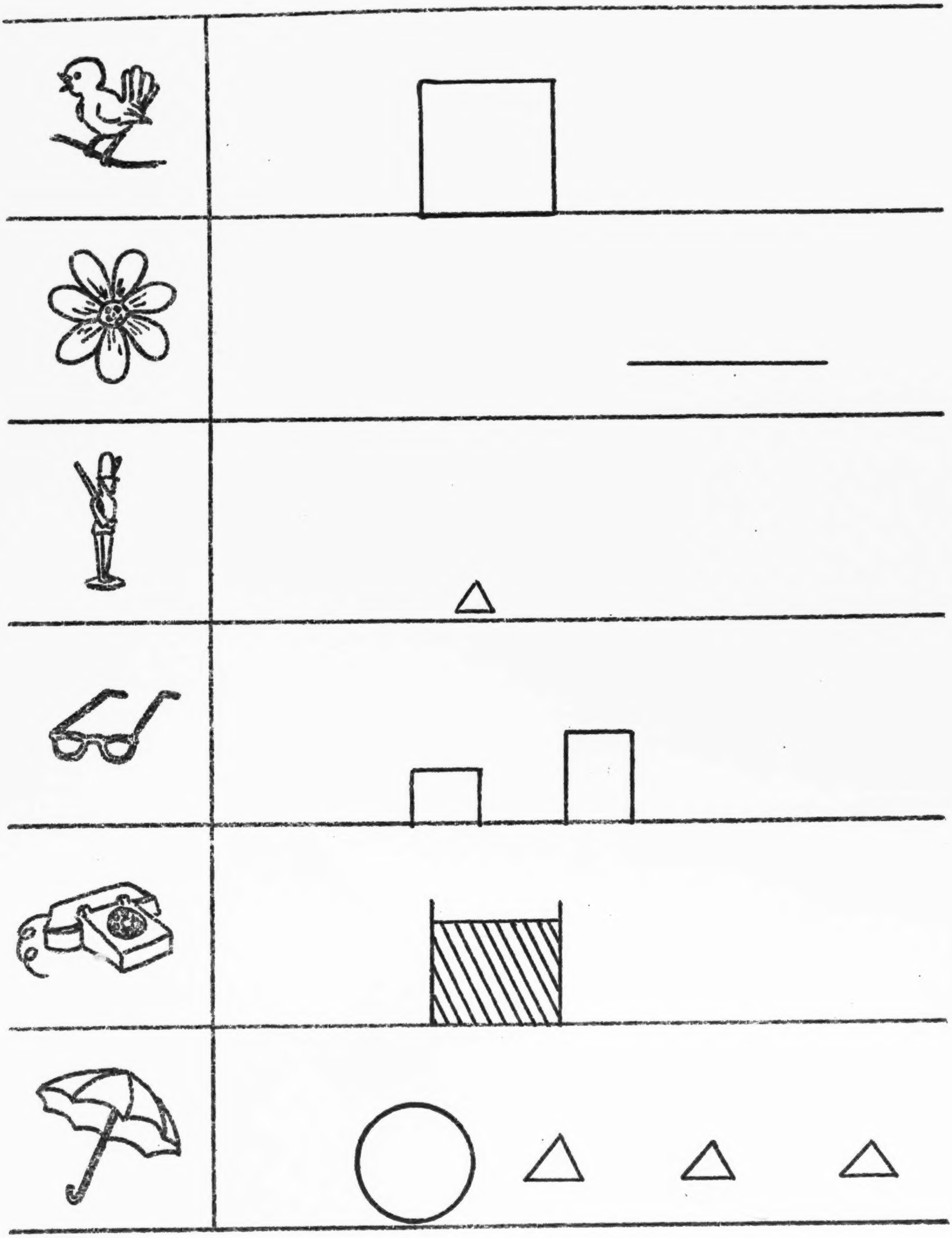
7. Find the pin. In the space next to it there are two circles. Draw one smaller than the others.

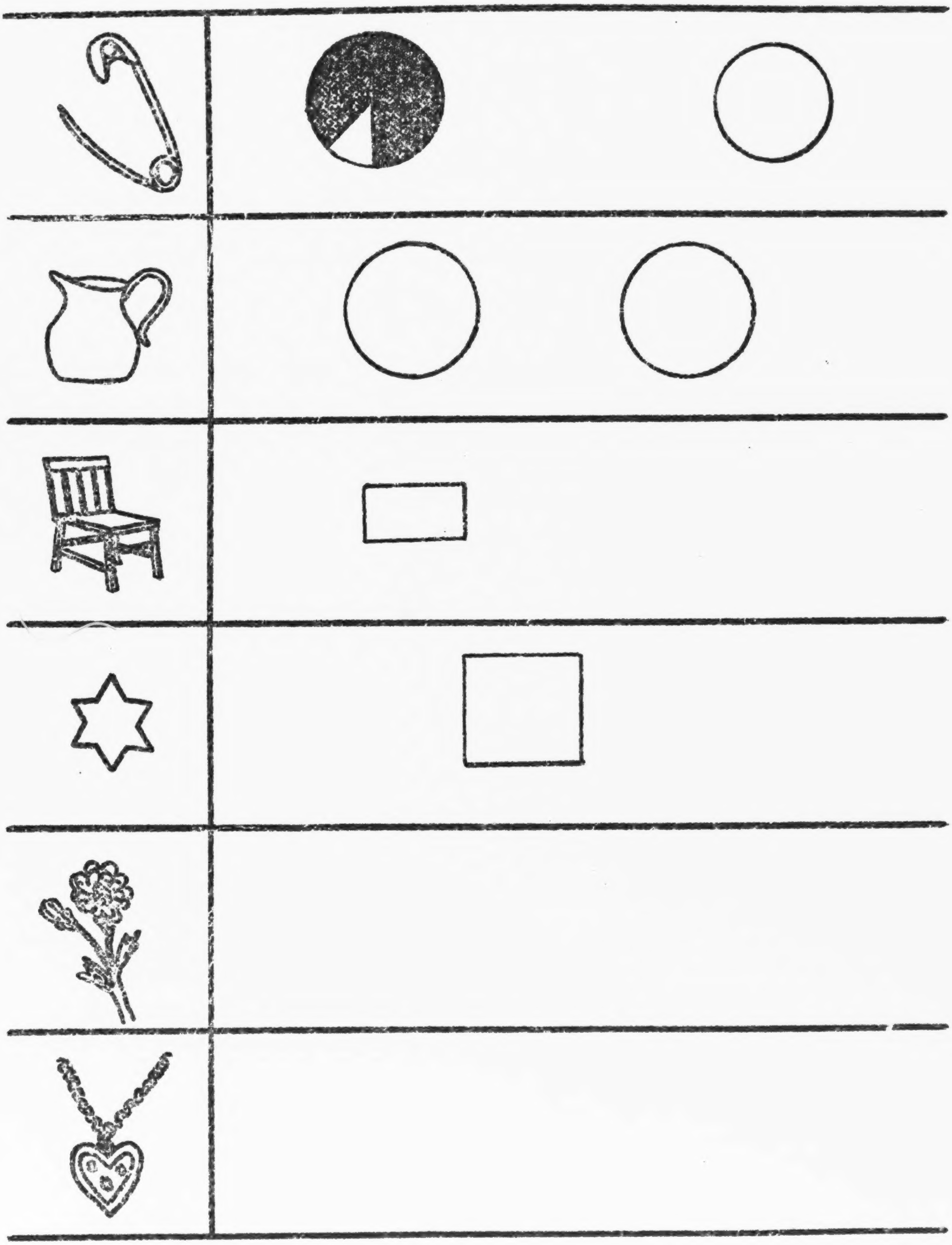
8. Find the pitcher. There are two circles in the space next to it. One is partly colored, the other is black. Color part of the blank circle, coloring less than in the already colored circle.

9. Find the chair. In the space next to it is a wide box. Draw a narrow one.

10. Find the star. In the space next to it make a circle near the square.

11. Find the flower. In the space next to it write your name as small as you can.





TEST INSTRUCTIONS: Tuesday, July 11, 1967

A. Remove your sheet and pencil from your envelope.

Today we have a different game. In order to win this game, you will have to listen very carefully and watch your sheet. There are different sheets for different students, so you will have to watch your own sheet. The person to fill his sheet correctly wins, so listen carefully for the letters, numbers or shapes to be called. I will call them only once.

B. In the center of the sheet is an "X". Fill in the dots to make an "X" for your first free move. You will make an "X" on any letter, number, or shape on your card that you hear me call. Remember, I will call them only once.

Square
Large A
Number 1
Small b
Small m
Triangle
Number 7
Small d

Slant line
Large D
Circle
Number 6
Small a
Number 2
Arrow UP
Number 9
Large V

Arrow DOWN
Number 5
Small h
Small p
Star
Large F
Small w
Number 4

C. (Everyone should be finished now.) Write your first and last names on the top of the sheet.

D. Write the month you were born on the second line.

E. Pull the sheets apart. You may keep the blue copy. Place the white copy and your pencil in the envelope.

□	2	↓
A	×	○
9	☆	d

4	A	○
↑	×	1
5	p	w

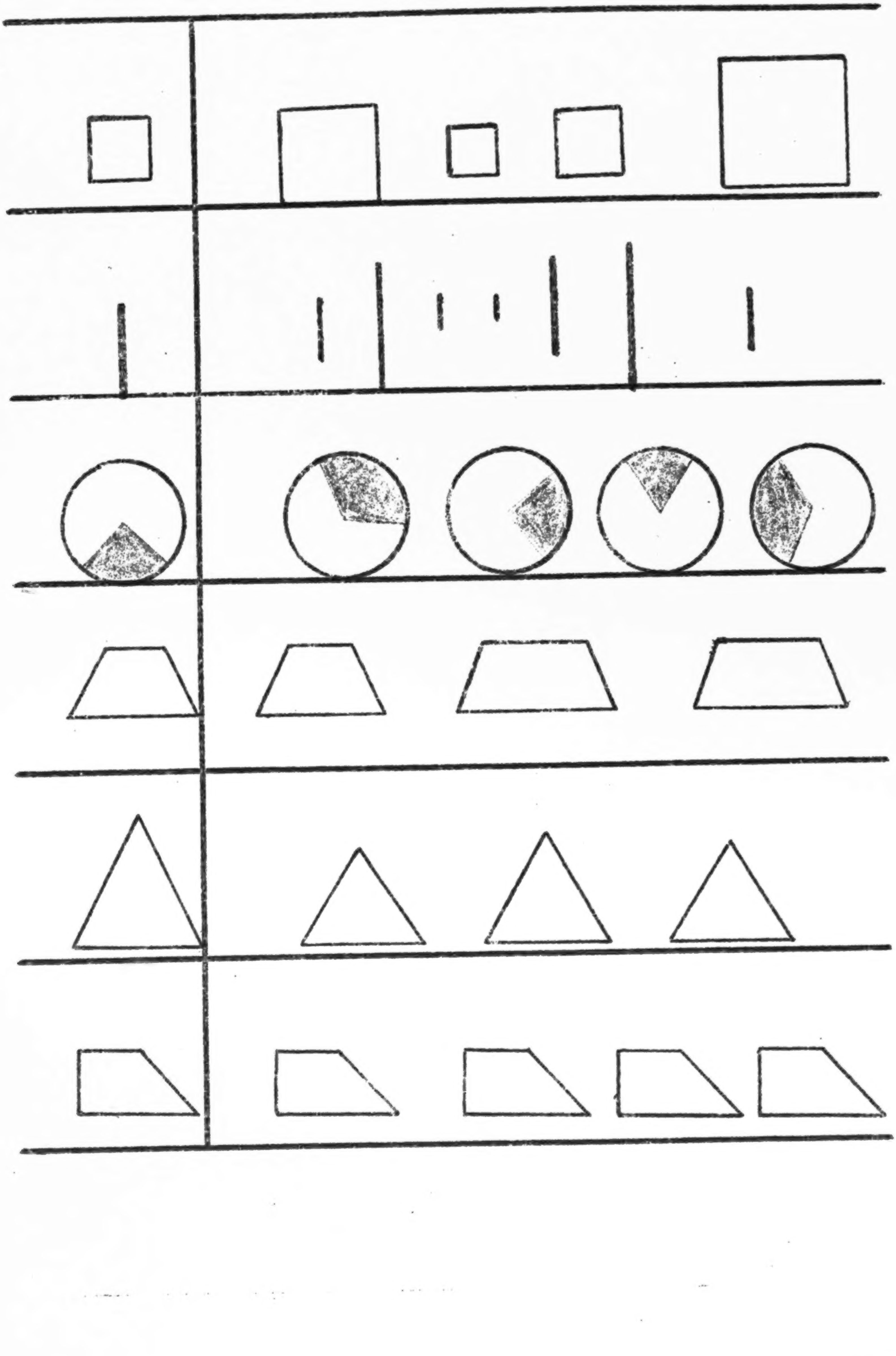
6	D	1
↑		□
△	b	a

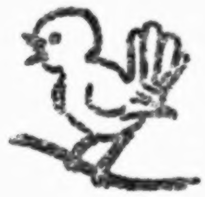
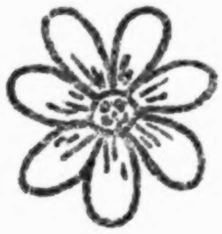
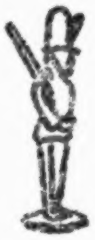
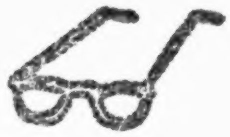
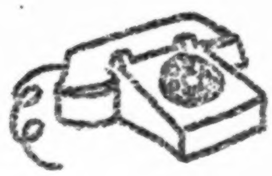
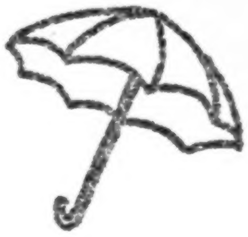
□	h	2
F		↓
7	P	V

TEST INSTRUCTIONS: Wednesday, July 12, 1967

A. Remove the sheet and pencil from your envelope and place them on the floor in front of you.

1. Find the square in the small box. In the large box place an "X" on the square that is the same size.
2. Find the line in the small box. In the large box, mark an "X" on the lines that are taller.
3. Find the circle in the small box. In the large box, mark the circle or circles that have the same amount darkened.
4. Find the trapezoid (figure) in the small box. In the large box, mark the figure or figures that are wider.
5. Find the triangle. In the large box, mark the figure or figures that are shorter.
6. Find the trapezoid (figure). In the large box, mark the two figures that are closest to each other.
7. Find the bird. In the box next to it, write your first name as large as you can.
8. Find the flower. In the box next to it, write your last name as small as you can.
9. Find the soldier. In the box next to it, write your address (house number and street).
10. Find the eyeglasses. In the box next to them, write your age.
11. Find the telephone. In the box next to it, write your telephone number.
12. Find the umbrella. In the box next to it, write the name of the month you were born.



TEST INSTRUCTIONS: Thursday, July 13, 1967

A. Remove your pencil and paper from your envelope and place them on the floor (table) in front of you.

B. Read the instructions to yourself, while I read them aloud (ALL GROUPS EXCEPT MUSIC, GRADE 1):

"Lost: One Lollipop. The picnic's over. One lollipop lies in the grass. Which ant will find the lollipop and have a picnic of his own?"

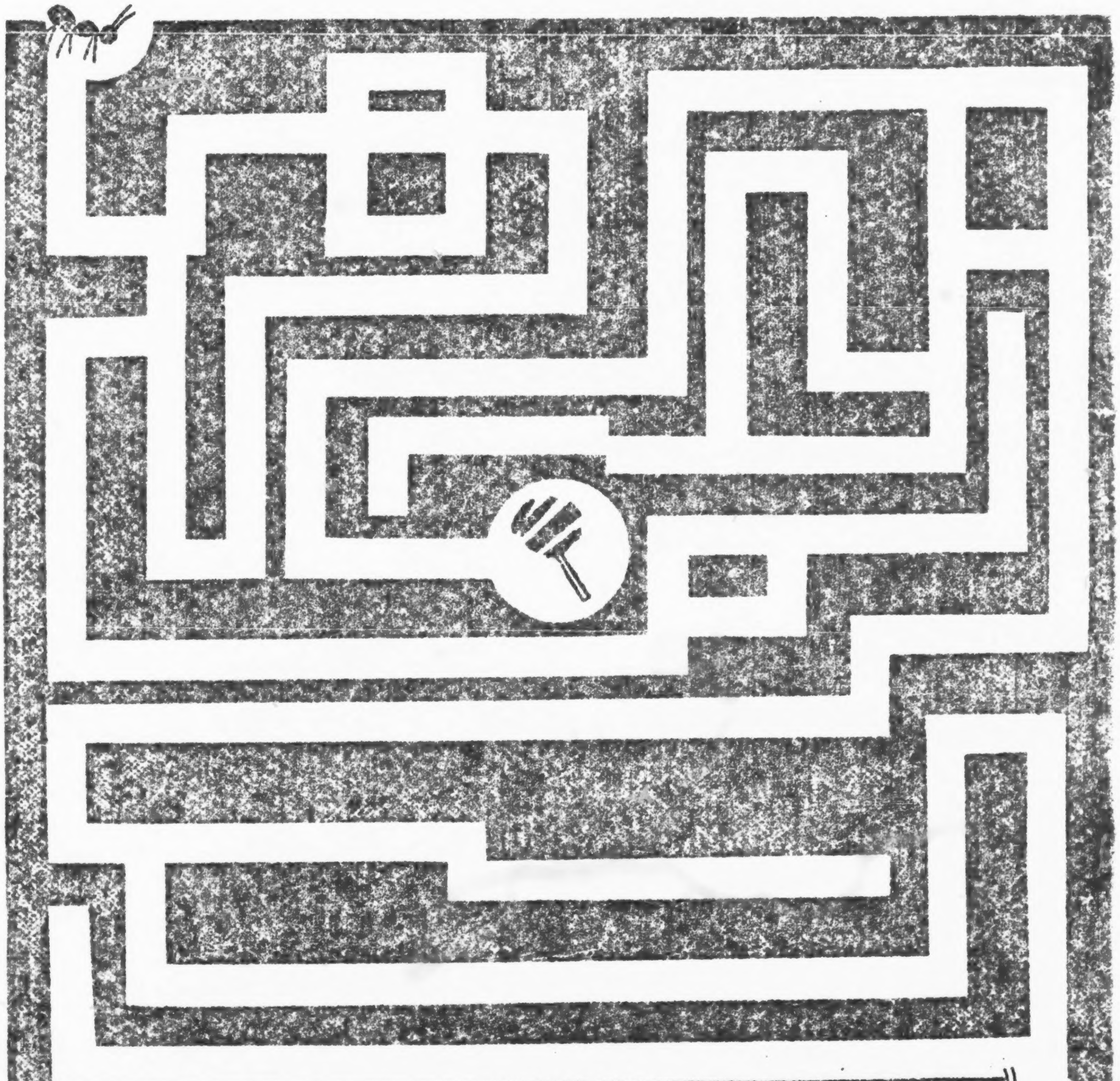
MUSIC ONLY:
"Which way to the igloo? This little Eskimo is lost in the snow and can't find the right way back to the igloo. The penguin can't find the way either, but you can help!"

C. Use your pencil to draw the line that will lead to the destination.

D. Now put your sheets and pencils back in your envelopes and pass them in.

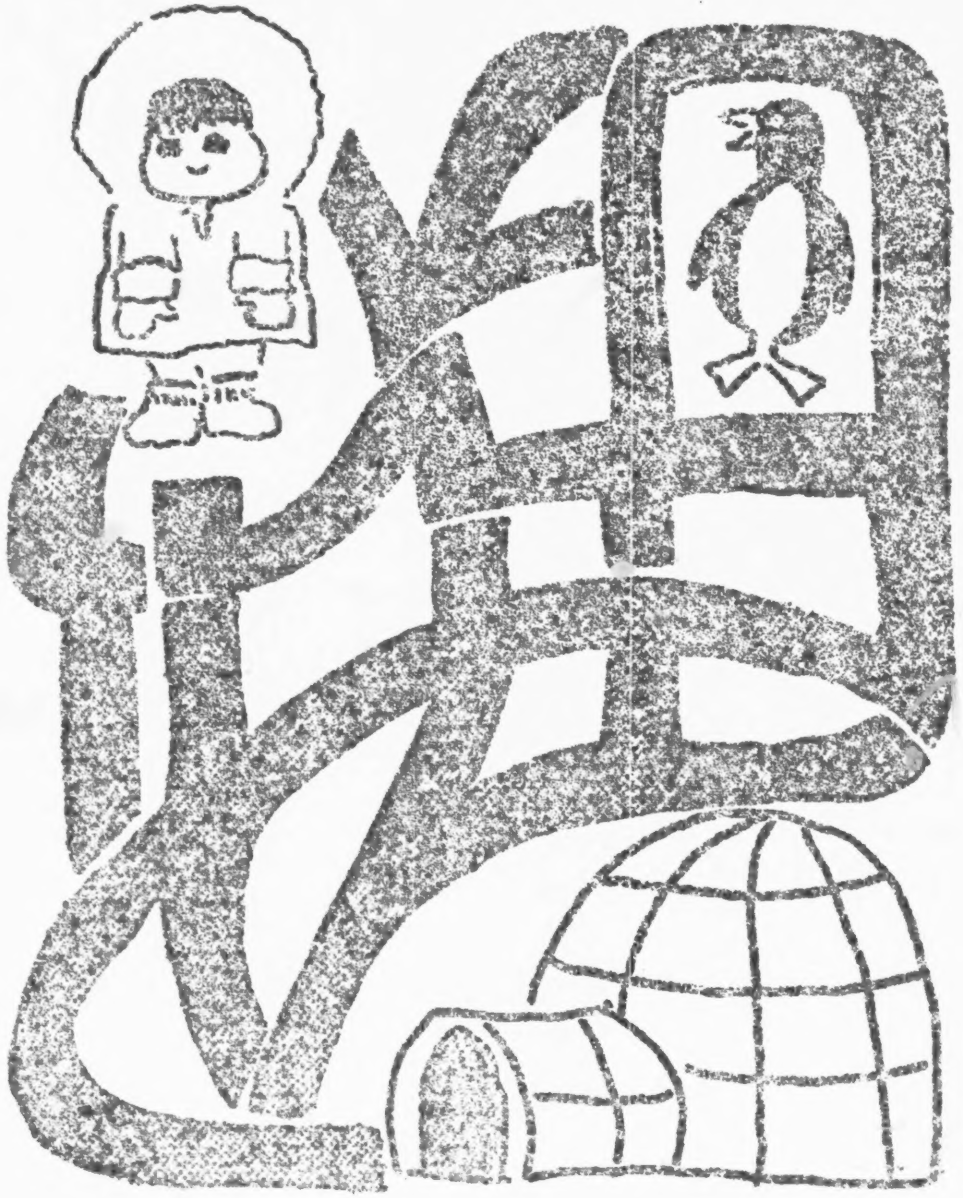
LOST: ONE LOLLIPOP

The picnic's over. One lollipop lies in the grass. Which ant will find the lollipop and have a picnic of his own? Answer appears at the back of the book.



WHICH WAY TO THE IGLOO?

- This little Eskimo is lost in the snow and can't find the right way back to his igloo. The penguin can't find the way either, but *you* can help!



TEST INSTRUCTIONS: Friday, July 14, 1967

A. Remove the pencil and paper from your envelope and place them on the floor in front of you.

B. Write your name in the upper left hand corner of the paper.

C. Read the directions to yourself, while I read them aloud:

"On the left of your paper you have a column of numbered words. On the right there is a column of figures with empty spaces beside them. When I read the numbered word to you, find the figure or drawing that matches that word and write the number beside that figure."

Number 1 - Triangle. Find the triangle. In the space next to the triangle, write the figure 1.

Number 2 - Heart. Find the heart. In the space next to the heart, write the figure 2.

Number 3 - Square. Find the square. In the space next to the square, write the figure 3.

Number 4 - Circle. Find the circle. In the space next to the circle, write the figure 4.

Number 5 - Rectangle. Find the rectangle. In the space next to the rectangle, write the figure 5.

Number 6 - Arrow. Find the arrow. In the space next to the arrow, write the figure 6.

Number 7 - Diamond. Find the diamond. In the space next to the diamond, write the figure 7.

Number 8 - Line. Find the line. In the space next to the line, write the figure 8.

(GRADE 1 ONLY STOPS AT THIS POINT. RETURN YOUR PAPERS AND PENCILS TO YOUR ENVELOPES.)

Number 9 - Parallelogram. Find the parallelogram. In the space next to the parallelogram, write the figure 9.

Number 10 - Diagonal line. Find the diagonal line. In the space next to the diagonal line, write the figure 10.

Number 11 - Arrow to the left. Find the arrow to the left. In the space next to the arrow to the left, write the figure 11.

Number 12 - Trapezoid. Find the trapezoid. In the space next to the trapezoid, write the figure 12.

Number 13 - Arrow to the right. Find the arrow to the right. In the space next to the arrow to the right, write the figure 13.

Number 14 - Horizontal line. Find the horizontal line. In the space next to the horizontal line, write the figure 14.

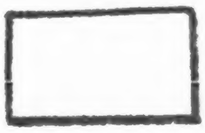
Number 15 - Vertical line. Find the vertical line. In the space next to the vertical line, write the figure 15.

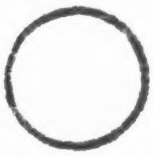
NOW PLACE YOUR PENCILS AND PAPERS IN YOUR ENVELOPES.

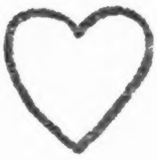
DIRECTIONS: On the left of your paper you have a column of numbered words. On

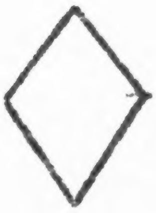
On the right there is a column of figures with empty spaces beside them. When I read the numbered word to you, find the figure or drawing that matches that word and write the number beside that figure.

1. Triangle.
2. Heart.
3. Square.
4. Circle.
5. Rectangle.
6. Arrow.
7. Diamond.
8. Line.

___ 

___ 

___ 

___ 

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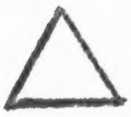
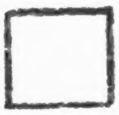
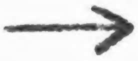
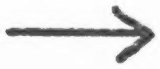
___ 

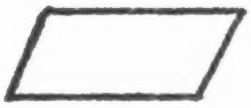
___ 

___ 

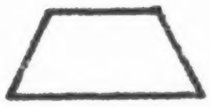
9. Parallelogram. ____



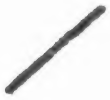
10. Diagonal line. ____



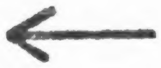
11. Arrow to the Left. ____



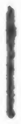
12. Trapezoid. ____



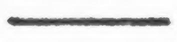
13. Arrow to the Right. ____



14. Horizontal Line. ____



15. Vertical Line. ____



TEST INSTRUCTIONS: Monday, July 17, 1967

A. Remove the paper and pencil from your envelope and place them on the floor in front of you.

B. Write your name in the upper right corner of the page.

C. Read the directions to yourself, while I read them aloud.

"On the left side of your paper you have a column of numbered words. Across from each word is a box. When I read a numbered word to you draw the figure in the box next to it."

D. Listen carefully as I call the words:

1. Triangle
2. Heart
3. Square
4. Circle
5. Rectangle
6. Diamond
7. Line

(GROUP 1 STOPS HERE.)

8. Parellelogram
9. Arrow to the Left
10. Diagonal Line
11. Trapezoid
12. Arrow to the Right
13. Horizontal Line
14. Vertical Line
15. Address
16. Year of Birth

PLACE YOUR PAPERS AND PENCILS IN YOUR ENVELOPES AND PASS THEM IN.

DIRECTIONS: On the left side of your paper you have a column of numbered words. Across from each word is a box. When I read a numbered word to you, draw the figure in the box next to it.

1. Triangle	
2. Heart	
3. Square	
4. Circle	
5. Rectangle	
6. Diamond	
7. Line	

8. Parallelogram	
9. Arrow to the Left	
10. Diagonal Line	
11. Trapezoid	
12. Arrow to the Right	
13. Horizontal Line	
14. Vertical Line	
15. Address	
16. Year of Birth	

TEST INSTRUCTIONS: Tuesday, July 18, 1967

A. Remove the paper and pencil from your envelope and place them on the floor (table) in front of you.

B. Write your name in the upper left hand corner of the page.

C. Read the directions to yourself, while I read them aloud:

"This week we are talking about the shapes of things. Everywhere around you shapes such as circles, squares, and triangles are used to make things we live with. On the left of your sheet is a column of shapes. Next to each shape are several blanks. As I name an object, you will place its number in the space beside its shape."

1. Basketball -- Place a "1" in the space beside the shape of a basketball.

2. Pencil -- Place a "2" in the space beside the shape of a pencil.

3. Table -- Place a "3" in the space beside the shape of a table.

4. Ring-around-the-roses -- Place "4" in the space beside the shape of a "ring-around-the-roses" game.

5. Blackboard -- Place "5" in the space beside the shape of a blackboard.

6. Capital A -- Place "6" in the space beside the shape of a capital A.

7. Automobile tire -- Place "7" in the space beside the shape of an automobile tire.

8. Stop sign -- Place "8" in the space beside the shape of a stop sign.

9. Book -- Place "9" in the space beside the shape of a book.

10. Bicycle wheel -- Place "10" in the space beside the shape of a bicycle wheel.

11. Baseball bat -- Place "11" in the space beside the shape of a baseball bat.

12. Baseball field -- Place "12" in the space beside the shape of a baseball field.

13. This sheet of paper -- Place "13" in the space beside the shape of this sheet of paper.

14. Letter "c" -- Place "14" in the space beside the shape of the letter "c".

15. Tepee -- Place "15" in the space beside the shape of the tepee.

16. Refrigerator -- Place "16" in the space beside the shape of the refrigerator.

17. Steering wheel -- Place "17" in the space beside the shape of the steering wheel.

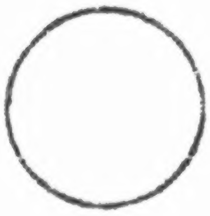
18. Arrowhead -- Place "18" in the space beside the shape of the arrowhead.

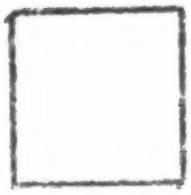
19. Bricks -- Place "19" in the space beside the shape of the bricks.

20. Nose cone -- Place "20" in the space beside the shape of the nose cone.

RETURN YOUR PAPERS AND PENCILS TO YOUR ENVELOPES AND PASS THEM IN.

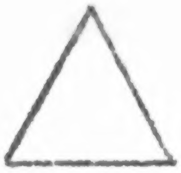
DIRECTIONS: This week we are talking about the shapes of things. Everywhere around you shapes such as circles, squares, and triangles are used to make things we live with. On the left of your sheet is a column of shapes. Next to each shape are several blanks. As I name an object, you will place its number in the space beside its shape.

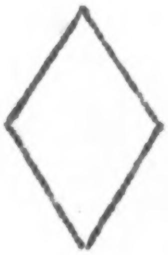
Circle

____ ____ ____ ____ ____ ____

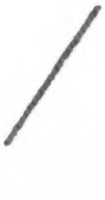
Square

____ ____ ____ ____ ____ ____

Rectangle

____ ____ ____ ____ ____ ____

Triangle

____ ____ ____ ____ ____ ____

Diamond

____ ____ ____ ____ ____ ____

Diagonal Line

____ ____ ____ ____ ____ ____

TEST INSTRUCTIONS: Wednesday, July 19, 1967

A. Remove the paper and pencil from your envelope and place them on the floor in front of you.

B. Write your name in the upper left hand corner of the paper.

C. Read the directions to yourself, while I read them aloud:

"The alphabets and numbers we use to write and read are made up of the shapes we have talked about. Below are several figures which can be changed to make familiar numbers and letters."

1. For instance, find the tree. In the space next to it there are two vertical lines. Draw another line to make a large "H".

2. Find the cup. In the space next to it, change the open figure to make an "O".

3. Find the dog. In the space next to it, draw a line next to the circle to make a small "b".

4. Find the ambulance. In the space next to it, draw a line on this figure to make a "W".

5. Find the book. In the space next to it, draw a line on this figure to make the number "4".

6. Find the bird. In the space next to it, draw a circle next to the line to make a small "d".

7. Find the flowers. In the space next to them, draw a line next to the circle to make the number "9".

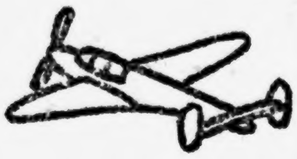
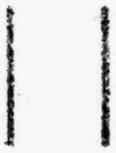
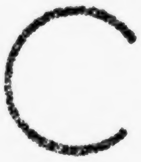
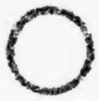
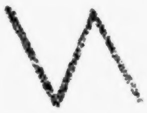
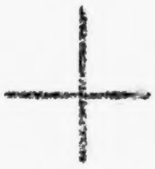
8. Find the soldier. In the space next to it, add two lines to the horizontal line to make a large "A".

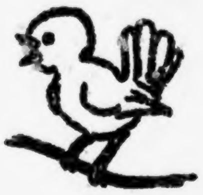
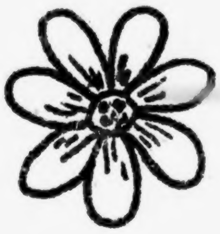
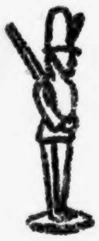
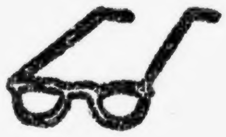
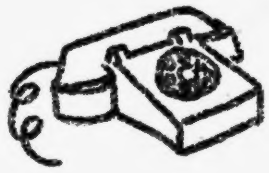
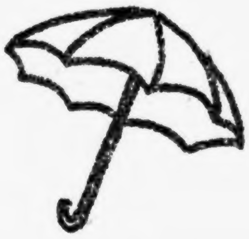
9. Find the glasses. In the space next to them, draw a line to make the letter "p".

10. Find the telephone. In the space next to it, draw a part of a circle to make a "5".

11. Find the umbrella. In the space next to it, draw a circle to make an "8".

D. RETURN THE PAPERS AND PENCILS TO YOUR ENVELOPE AND PASS THEM IN.

	**DIRECTIONS:** The alphabets and numbers we use to write and read are made up of the shapes we have talked about. Below are several figures which can be changed to make familiar numbers and letters.
	
	
	
	
	

	○
	○
	—
	○
	┌
	○

TEST INSTRUCTIONS: Thursday, July 20, 1967

REMOVE THE SHEETS AND PENCILS FROM THE ENVELOPE AND PLACE THEM ON THE FLOOR (TABLE) IN FRONT OF YOU.

Today, we are going on a treasure hunt. We will be hunting for the shapes we have talked about this week. In the samples below, several shapes are hidden. You are to look for the shapes and color the ones I name. Do you see the small triangle in the square? Color it.

This square is made of two triangles. Color the top one.

In the next picture, color the small square.

In the next picture, color the rectangles.

(TO TESTER: These four illustrations are samples to help children recognize the task. The children should get help on these if they have difficulty.)

NOW TURN THE PAGE. The pictures you see are made of several shapes. When I name a shape you will find it in the drawing and color it with your pencil. Happy Hunting!

In the first drawing, find the circle and color it.

In the next picture, find the triangles and color them.

TURN THE PAGE. Find the squares and color them.

Next, find the rectangles. Color them.

(FIRST GRADE ONLY STOPS HERE)

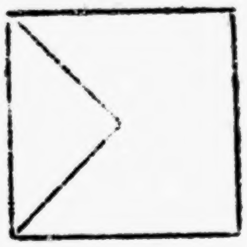
TURN THE PAGE. Find the parallelograms. Color them.

Last, find the trapezoids. Color them.

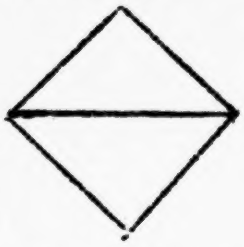
WRITE YOUR NAME ON THE BOTTOM OF THE FIRST SHEET.

RETURN THE SHEETS AND PENCILS TO THE ENVELOPES.

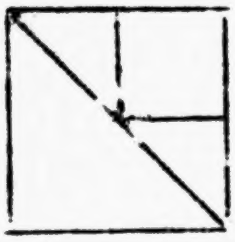
Today we are going on a treasure hunt. We will be hunting for the shapes we have talked about this week. In the samples below, several shapes are hidden. You are to look for the shapes and color the ones I name. Do you see the small triangle in the square? Color it.



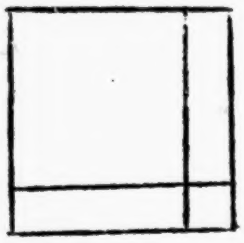
This square is made of two triangles. Color the top one.

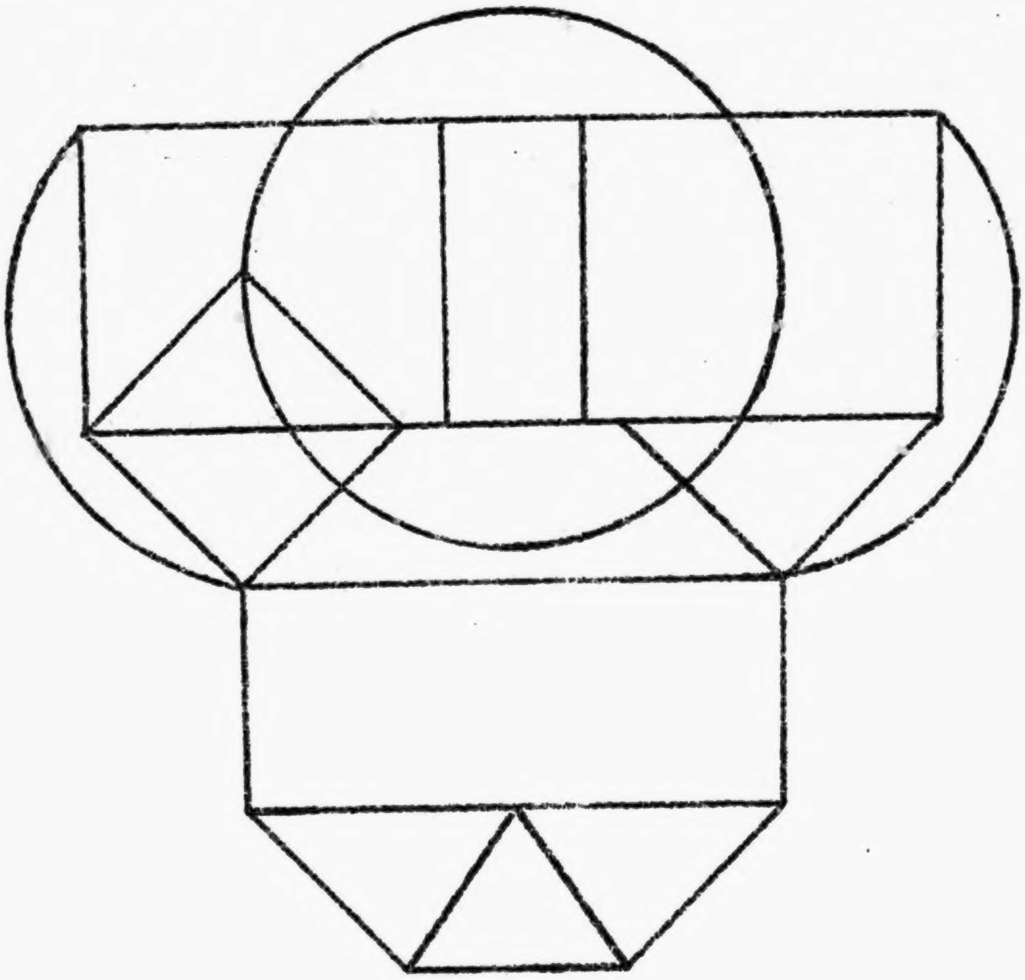


In the next picture, color the small square.



In the next picture, color the rectangles.





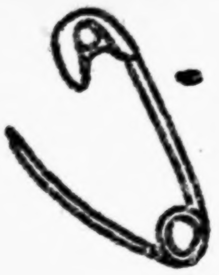
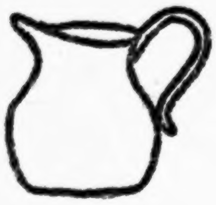
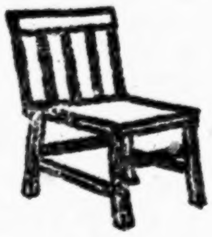
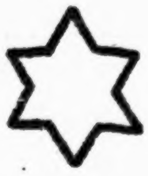
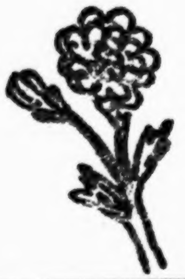
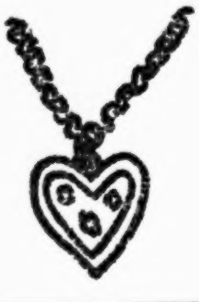
TEST INSTRUCTIONS: Friday, July 21, 1967

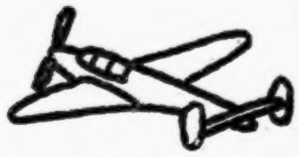
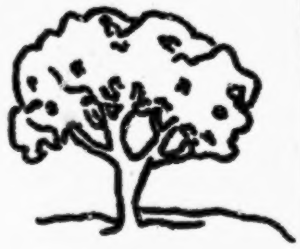
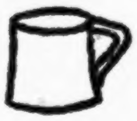
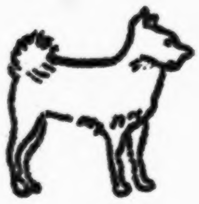
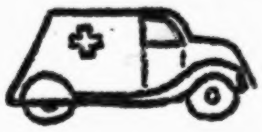
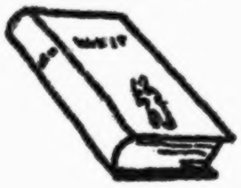
REMOVE YOUR PENCILS AND PAPERS FROM YOUR ENVELOPES AND PLACE THEM ON THE FLOOR (TABLE) IN FRONT OF YOU.

1. Find the PIN. In the box next to it, write your first name.
2. Find the PITCHER. In the box next to it, write your last name.
3. Find the CHAIR. In the space next to it, tell me how old you are.
4. Find the STAR. In the space next to it, write your address -- the house number and the name of the street where you live.
5. Find the FLOWER. In the space next to it, write the name of the oldest person in your family.
6. Find the LOCKET. In the space next to it, write the name of the youngest person in your family.

GROUP 1 ONLY STOPS HERE.

7. Find the AIRPLANE. In the space next to it, tell me what day this is.
8. Find the TREE. In the space next to it, tell me what month this is.
9. Find the CUP. In the space next to it, tell me what year this is.
10. Find the DOG. In the space next to it, write your telephone number. If you do not have one, write the word "no".
11. Find the AMBULANCE. In the space next to it, write the name of this city, the city you live in.
12. Find the BOOK. In the space next to it, tell me the name of the school you go to.

TEST INSTRUCTIONS: July 24, 1967

Group 1

How many of you know your alphabet? Do you know your numbers? Today, I want to see how many of your letters and numbers you can do. Each sheet has some letters and some numbers missing. Start with A - B - C and fill in the square with whatever letter or number is missing.

When you finish, put your sheets and pencils in the envelope.

A	B	C	D		F	
G	H		J	K		M
N		P	Q	R	S	
U		W		Y	Z	
1	2	3		5		
6		8		10		
a	b	c		e	f	
g	h		j	k		m
n		p	q	r		t
u		w		y	z	

Test Instructions: Monday, July 24, 1967

Part I -- The names of the months have been listed below. Next to this list is a row of numbered spaces. As I ask a question, you will write the name of the correct month in the space.

1. Name the month of your birthday.
2. Name the month when Christmas comes.
3. Name one summer month.
4. Name the month when school starts.
5. Name this month.
6. Name one fall month.
7. Name the month when New Year's comes.
8. Name the month when Thanksgiving comes.
9. Name the month when Hallowe'en comes.
10. Name one spring month.
11. Name one winter month.
12. Name the month when George Washington's Birthday comes.

Part II -- Read the questions below and fill in the blanks with the correct number from the column on the left.

WHEN YOU FINISH, WRITE YOUR NAME IN THE LOWER LEFT HAND CORNER OF THE SHEET AND TURN YOUR ENVELOPE IN.

I.	January	1. ____________________
	February	2. ____________________
	March	3. ____________________
	April	4. ____________________
	May	5. ____________________
	June	6. ____________________
	July	7. ____________________
	August	8. ____________________
	September	9. ____________________
	October	10. ____________________
	November	11. ____________________
	December	12. ____________________

II.	4	How many seconds are in a minute? ______
	7	How many minutes are in an hour? ______
	10	How many hours in a day? ______
	12	How many days in a week? ______
	24	How many weeks in a month? ______
	30	How many months in a year? ______
	60	How many seasons in a year? ______
	100	How many years in a century? ______

TEST INSTRUCTIONS: July 25, 1967

Group 1

A. Remove your sheets, pencils and dots from your envelopes and place them on the table in front of you.

B. Remove one dot and. . .

1. Place it on the small a.
2. Place a dot on the number 9.
3. Place a dot on the large Z.
4. Place a dot on the large first letter of your first name.
5. Place a dot on the large first letter of your last name.
6. Place a dot on the small b.
7. Place a dot on the number 3.
8. Place a dot on the large letter K.
9. Place a dot on the small letter c.
10. Place a dot on the small letter p.

C. Write your name on the back of the page.

A B C D E F

G H I J K L M

N O P Q R S T

U V W X Y Z

1 2 3 4 5

6 7 8 9 10

a b c d e f

g h i j k l m

n o p q r s t

u v w x y z

TEST INSTRUCTIONS: July 25, 1967

Group 2

A. Remove your papers and pencils from your envelopes and place them on the floor in front of you.

B. Read the questions on your paper to yourself, while I read them aloud.

1. Name the month of your birthday.
2. Name the month when Christmas comes.
3. Name the month when school starts.
4. Name this month.
5. Name the month when Thanksgiving comes.
6. Name this day of the week.
7. Name a month when it snows.
8. Name a month when it gets hot.
9. Name the first day of the school week.
10. Name the last day of the school week.

C. Write your name at the bottom of your paper and pass it in.

1. Name the month of your birthday. ____________________
2. Name the month when Christmas comes. ____________________
3. Name the month when school starts. ____________________
4. Name this month. ____________________
5. Name the month when Thanksgiving comes. ____________________
6. Name this day of the week. ____________________
7. Name a month when it snows. ____________________
8. Name a month when it gets hot. ____________________
9. Name the first day of the school week. ____________________
10. Name the last day of the school week. ____________________

January

February

March

April

May

June

July

August

September

October

November

December

Sunday

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

TEST INSTRUCTIONS: July 25, 1967

Groups 3 and 4

A. Remove your papers and pencils from your envelopes and place them on the floor in front of you.

B. Read the questions on your paper to yourself, while I read them aloud.

1. Name the month of your birthday.
2. Name the month when Christmas comes.
3. Name the month when school starts.
4. Name the month when Thanksgiving comes.
5. Name the season January comes in.
6. Name the season July comes in.
7. Name the season October comes in.
8. Name the season April comes in.
9. In the space below, write the names of the days of the week.

C. Write your name at the bottom of your paper and pass it in.

1. Name the month of your birthday. ______________________

2. Name the month when Christmas comes. ______________________

3. Name the month when school starts. ______________________

4. Name the month when Thanksgiving comes. ______________________

5. Name the season January comes in. ______________________

6. Name the season July comes in. ______________________

7. Name the season October comes in. ______________________

8. Name the season April comes in. ______________________

9. In the spaces below, write the names of the days of the week:

____

____

____

____

____

____

____

TEST INSTRUCTIONS: July 26, 1967

Group 2

How many of you know your alphabet? Do you know your numbers? Today I want to see how many of your letters and numbers you can do. Each sheet has some letters and some numbers missing. Start with A - B - C and fill in the square with whatever letter or number is missing.

When you finish, put your sheets and pencils in the envelope.

A	B	C	D		F

G	H		J	K		M
N		P	Q	R	S	

U		W		Y	Z

1	2	3		5
6		8		10

a	b	c		e	f

g	h		j	k		m
n		p	q	r		t

u		w		y	z

TEST INSTRUCTIONS: July 26, 1967

Groups 3 and 4

Remove your sheets and pencils from your envelopes.

Today we have a paper game. The picture story of Silly Billy has been all mixed up. I want you to start with Picture No. 1 (Do you see No. 1?) and number the pictures in their correct order.

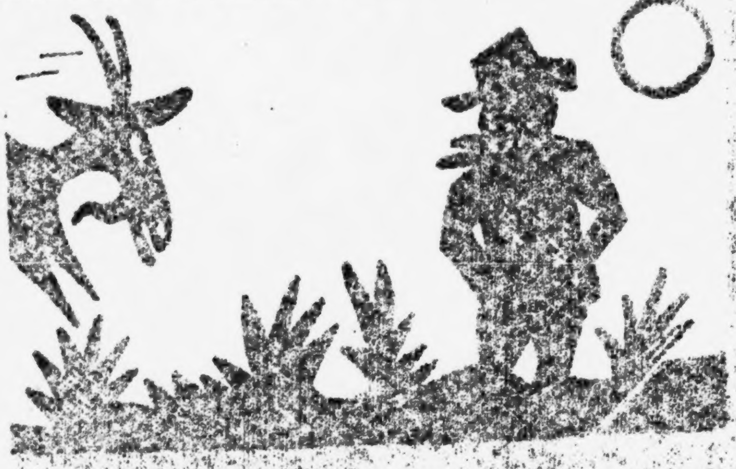
(Give the students time to number their pictures.)

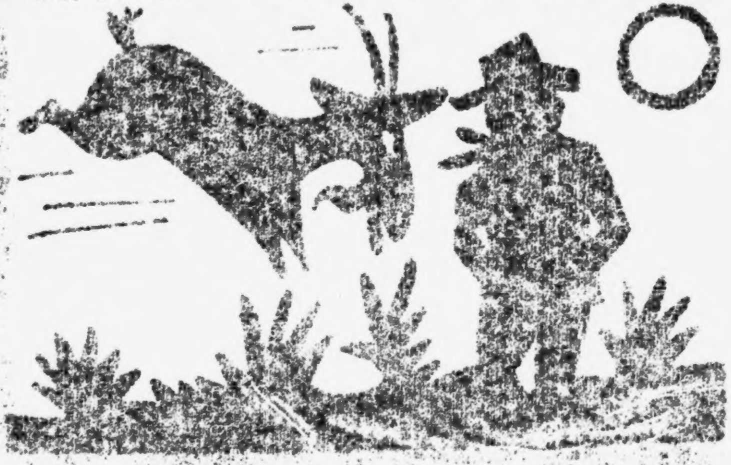
Write your name in the lower left hand corner of your paper. Now, put your pencils away. Who can tell the picture story?

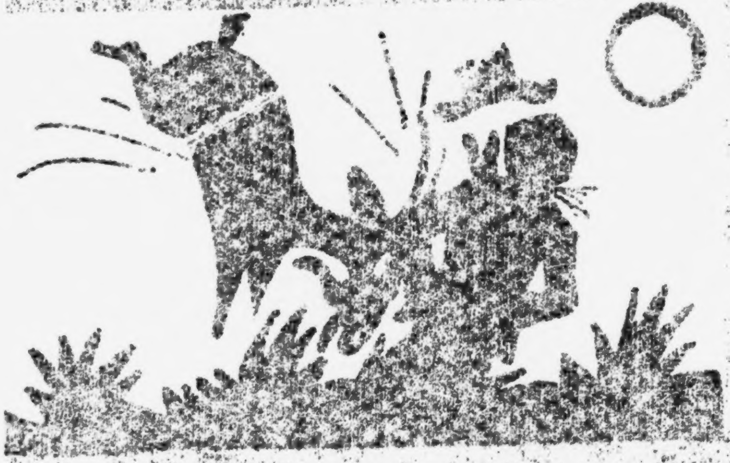
The story has been told. The students can return their sheets to their envelopes.

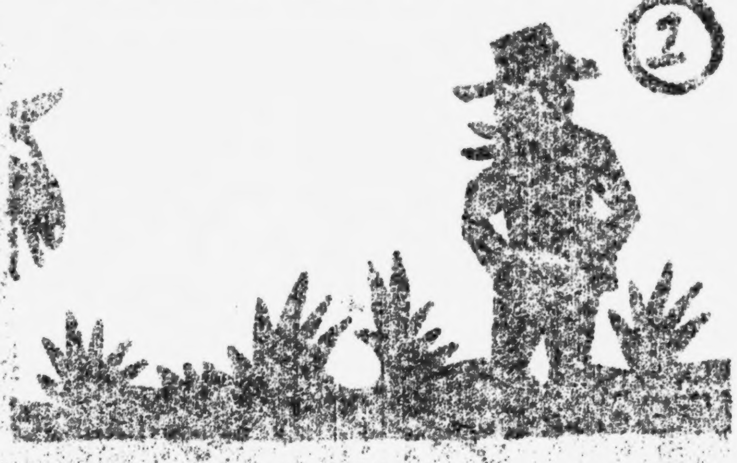
SILLY BILLY

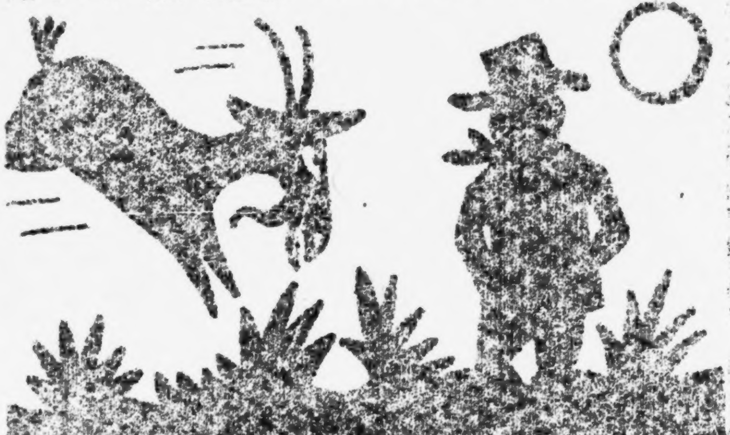
Billy Goat sees a man stealing vegetables from the garden. Or so he thinks! To find out what happened next, number the pictures in their correct order.

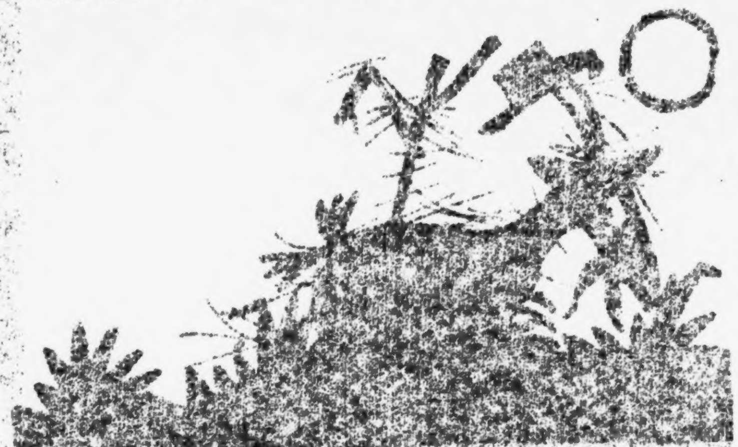












TEST INSTRUCTIONS: July 27, 1967

Group 1

1. Remove your sheets and dots and place them on the table in front of you.
2. Using the large letters, find the first letter of your name and place a dot on it.
3. Now go to the small letters. Spell out the rest of your name by putting a dot on each letter of your name.
4. Use one dot to cover the number that tells how old you are.
5. Write your first name on the bottom of the sheet.

A	B	C	D	E	F	
G	H	I	J	K	L	M
N	O	P	Q	R	S	T
U	V	W	X	Y	Z	
1	2	3	4	5		
6	7	8	9	10		
a	b	c	d	e	f	
g	h	i	j	k	l	m
n	o	p	q	r	s	t
u	v	w	x	y	z	

TEST INSTRUCTIONS: July 27, 1967

Group 2

A. Remove your sheets, pencils, and dots from your envelopes and place them on the table in front of you.

B. Remove one dot and. . .

1. Place it on the small a.
2. Place a dot on the number 9.
3. Place a dot on the large Z.
4. Place a dot on the large first letter of your first name.
5. Place a dot on the large first letter of your last name.
6. Place a dot on the small b.
7. Place a dot on the numver 3.
8. Place a dot on the large letter K.
9. Place a dot on the small letter c.
10. Place a dot on the small letter p.

C. Write your name on the back of your sheet and pass it in.

A B C D E F

G H I J K L M

N O P Q R S T

U V W X Y Z

1 2 3 4 5

6 7 8 9 10

a b c d e f

g h i j k l m

n o p q r s t

u v w x y z

TEST INSTRUCTIONS: July 27, 1967

Groups 3 and 4

1. Remove your sheets and pencils from your envelopes and place them on the table in front of you.

2. We have a game called THE SMART SNARK SNARK. Read the instructions to yourself, while I read them aloud.

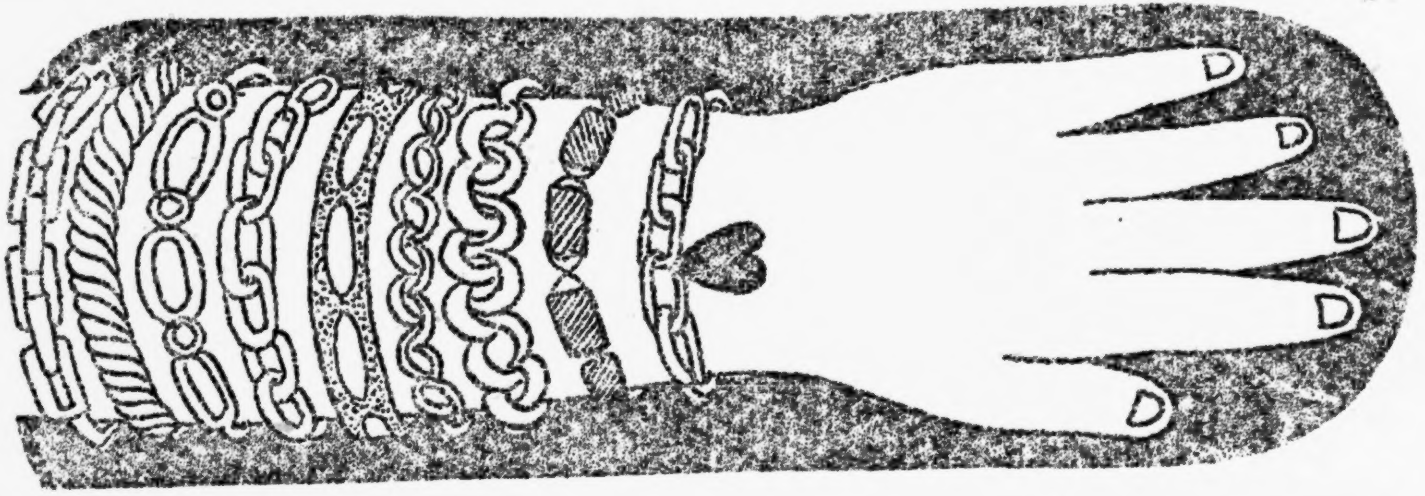
   "In Snark-Snark land, there lived a king who had 80 solid-gold teeth -- many more than he needed, even for eating corn-on-the-cob. He offered to give a gold tooth to anyone who could make 24 words out of the word 'bracelet.' He said each word must have at least three letters. 'E' can be used twice in a word because it appears twice in 'bracelet.'"

3. (Help the children get started with "brace" and "let" as starter words.) Make as many more words as you can, using three letters or more, from the word "bracelet."

4. When you finish, write your name in the upper left hand corner of your paper, return the sheets and pencils to your envelopes, and pass them in.

THE SMART SNARK-SNARK

In Snark-Snark land, there lived a king who had 80 solid-gold teeth—many more than he needed, even for eating corn-on-the-cob. He offered to give a gold tooth to anyone who could make 24 words out of the word "bracelet." He said each word must have at least three letters. "E" can be used twice in a word because it appears twice in "bracelet."



BRACELET

TEST INSTRUCTIONS: July 28, 1967

Group 1

How many of you know your alphabet? Do you know your numbers? Today, I want to see how many of your letters and numbers you can do. Each sheet has some letters and some numbers missing. Start with A - B - C and fill in the square with whatever letter or number is missing.

When you finish, put your sheets and pencils in the envelopes and pass them in.

A	B	C	D		F

G	H		J	K		M
N		P	Q	R	S	

U		W		Y	Z

1	2	3		5
6		8		10

a	b	c		e	f

g	h		j	k		m
n		p	q	r		t

u		w		y	z

TEST INSTRUCTIONS: Friday, July 28, 1967

PART I -- The names of the months have been listed below. Next to this list is a row of numbered spaces. As I ask a question, you will write the name of the correct month in the space.

1. Name the month of your birthday.
2. Name the month when Christmas comes.
3. Name one summer month.
4. Name the month when school starts.
5. Name this month.
6. Name one fall month.
7. Name the month when New Year's comes.
8. Name the month when Thanksgiving comes.
9. Name the month when Hallowe'en comes.
10. Name one spring month.
11. Name one winter month.
12. Name the month when George Washington's Birthday comes.

PART II -- Read the questions below and fill in the blanks with the correct number from the column on the left.

WHEN YOU FINISH, WRITE YOUR NAME IN THE LOWER LEFT HAND CORNER OF THE SHEET AND TURN YOUR ENVELOPE IN.

I.	January	1. ______________________
	February	2. ______________________
	March	3. ______________________
	April	4. ______________________
	May	5. ______________________
	June	6. ______________________
	July	7. ______________________
	August	8. ______________________
	September	9. ______________________
	October	10. ______________________
	November	11. ______________________
	December	12. ______________________

II.

4
7
10
12
24
30
60
100

How many seconds are in a minute? _____
How many minutes are in an hour? _____
How many hours in a day? _____
How many days in a week? _____
How many weeks in a month? _____
How many months in a year? _____
How many seasons in a year? _____
How many years in a century? _____

TEST INSTRUCTIONS: July 31, 1967

Group 1

1. Remove the paper and pencil from the envelope and place them on the table in front of you.

2. Find the picture of the pin at the top of the page. In the space next to it, write your first name.

3. Find the picture of the pitcher. In the space next to it, write your last name.

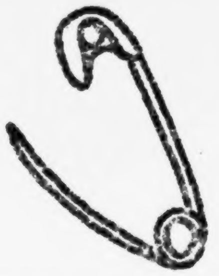
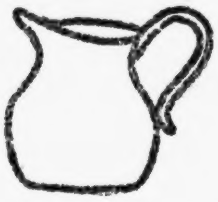
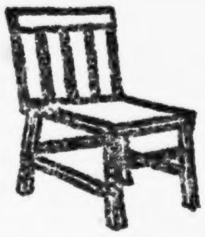
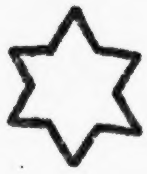
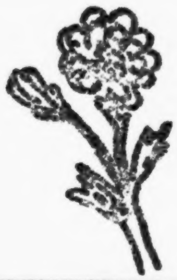
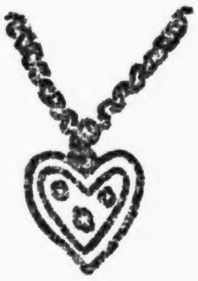
4. Find the picture of the chair; in the space next to it, write how old you are.

5. In the space next to the picture of the star, write when your birthday is (or when you will be a year older).

6. In the space next to the picture of the flower, write the name of the street you live on.

7. In the space next to the locket (heart), write your house number (the number of the house you live in).

8. When you finish, put the paper and pencil back in the envelope and pass it in.

TEST INSTRUCTIONS: Monday, July 31, 1967

Groups 2, 3 and 4

Remove your pencils and papers from your envelopes and place them on the floor (table) in front of you.

The exercise for today deals with the way we measure things. On the left of your paper you have a column of numbered words and figures. On the right is a list of questions with blank spaces for the answers. When I read the question to you, find the answer in the column on the left and write the number of the correct answer in the blank space.

1. What instrument do we use to tell the temperature, that is, how hot and cold it is?
2. What instrument do we use to weigh things, to tell how heavy things are?
3. What instrument do we use to measure how long or how tall things are?
4. What instrument do we use to measure the time of day?
5. What do we use to keep track of the days, of the weeks, the months, and the years?
6. What can we wear to tell the time?
7. In the clocks on the left, which one tells the time you come to school?
8. Which one tells the time you eat your lunch?
9. Which clock tells the time your club starts?
10. Which one tells the time you go home from school?

Write your name at the bottom of the page and return the paper and pencil to the envelope.

1. Ruler ______ What instrument do we use to tell the temperature, that is, how hot and cold it is?

2. Watch ______ What instrument do we use to weigh things, to tell how heavy things are?

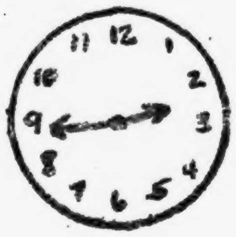
3. Calendar ______ What instrument do we use to measure how long or how tall things are?

4. Scale ______ What instrument do we use to measure the time of day?

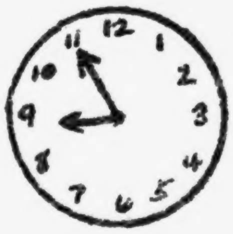
5. Thermometer ______ What do we use to keep track of the days, of the weeks, the months, and the years?

6. Clock ______ What can we wear to tell the time?

7. ______ In the clocks on the left, which one tells the time you come to school?


12
1
2
3
4
5
6
7
8
9
10
11

8. ______ Which one tells the time you eat your lunch?


12
1
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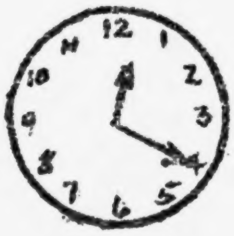
10
11

9. ______ Which clock tells the time your club starts?


12
1
2
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6
7
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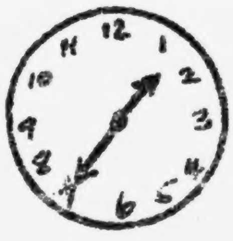
9
10
11

10. ______ Which one tells the time you go home from school?


12
1
2
3
4
5
6
7
8
9
10
11

TEST INSTRUCTIONS: Tuesday, August 1, 1967

Groups 1 and 2

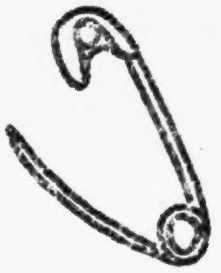
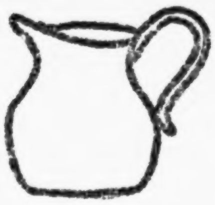
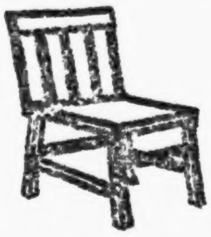
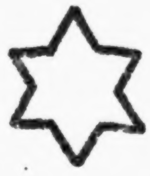
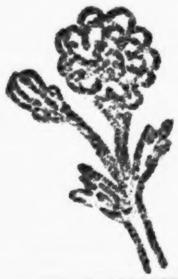
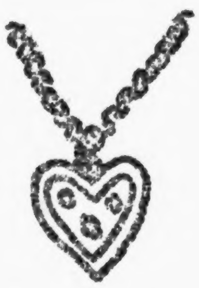
REMOVE YOUR PENCILS AND PAPERS FROM THE ENVELOPES AND PLACE THEM ON THE FLOOR.

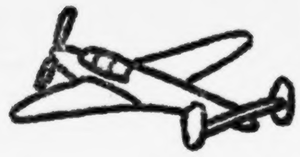
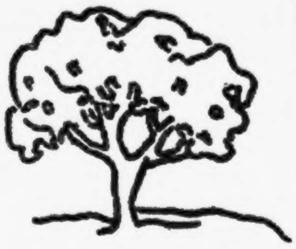
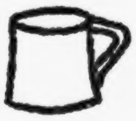
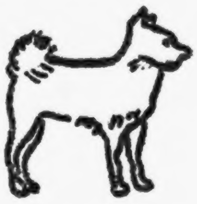
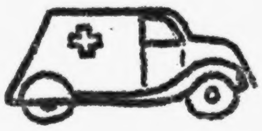
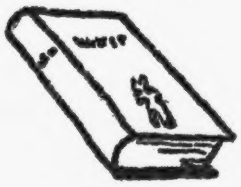
1. Find the PIN. In the space next to it, write your first name.
2. Find the PITCHER. In the space next to it, write your last name.
3. Find the CHAIR. In the space next to it, write your age -- how old you are.
4. Find the STAR. In the space next to it, write how many people are in your family -- father, mother, brothers, sisters and you.
5. Find the FLOWER. In the space next to it, write the name of the largest person in your family.
6. Find the LOCKET. In the space next to it, write the name of the smallest person in your family.

Group 1 Only Stops Here

7. Find the AIRPLANE. In the space next to it, write what day this is.
8. Find the TREE. In the space next to it, write what month this is.
9. Find the CUP. In the space next to it, write what year this is.
10. Find the DOG. In the space next to it, tell me when your birthday is.
11. Find the AMBULANCE. In the space next to it, write your telephone number. If you do not have a telephone number, write "NO".
12. Find the BOOK. In the space next to it, write the month when school starts.

RETURN YOUR PAPERS AND PENCILS TO YOUR ENVELOPES AND PASS THEM IN.

TEST INSTRUCTIONS

AUGUST 1, 1967

TUESDAY

1. Remove papers and pencils from test envelope, etc.

2. Read the directions to yourself while I read them aloud.

"Match the names of the measuring instruments in Column A with the words in Column B."

For instance, the first word in Column B is weight. Which instrument in Column A is used to measure weight? A scale. Write the word scale in the space next to weight.

Go on to number two. If you have any trouble with a word raise your hand for help.

When you finish write your name in the lower left hand corner of the sheet and place your surprise and pencil in the envelope.

Match the names of the measuring instruments in Column A with the words in Column B.

A

Calendar

Scale

Ruler

Thermometer

Clock

B

__________1. weight

__________2. cold

__________3. pounds

__________4. days

__________5. minutes

__________6. face

__________7. temperature

__________8. height

__________9. weeks

__________10. tons

__________11. feet

__________12. months

__________13. hours

__________14. seconds

__________15. inches

__________16. degrees

__________17. years

__________18. hot

__________19. hands

__________20. ounces

TEST INSTRUCTIONS August 2, 1967

Grade 1

Remove your sheets and pencils from your envelopes. Read the instructions to yourself while I read them aloud.

FIRE ALARM--The fire company just spotted a fire on the other side of town. The firemen see flames and smell smoke, but they need your help to find the fastest route. Use your pencil to draw a path between the black lines from the firemen to the fire. Do not cross over any black lines.

TO THE TOP--Yodel Lee has great hopes of reaching the mountain peak, but doesn't know which trail to take. Come along and guide him to the top. Draw a line from the man to the top of the mountain along the path he should take. Remember, do not cross any black lines. When you finish write your name on the top of the sheet, put paper and pencil back into the envelope and pass it in.

Grade 2 Girls

Remove your sheets and pencils from your envelopes. Read the instructions to yourself while I read them aloud.

CRAZY TALK--The nonsense writing that appears on this page is not as silly as it seems. The nonsense contains a secret message. To find the secret, write down every word that follows a word that has "legs." To start you off, the first secret word is meet. (It follows "dog." A dog has "legs.") Now invent your own secret message with another word of your own that is your private code.

When you have written the entire secret message, write your name on the top of the page, put your paper and pencil back into the envelope and pass it in.

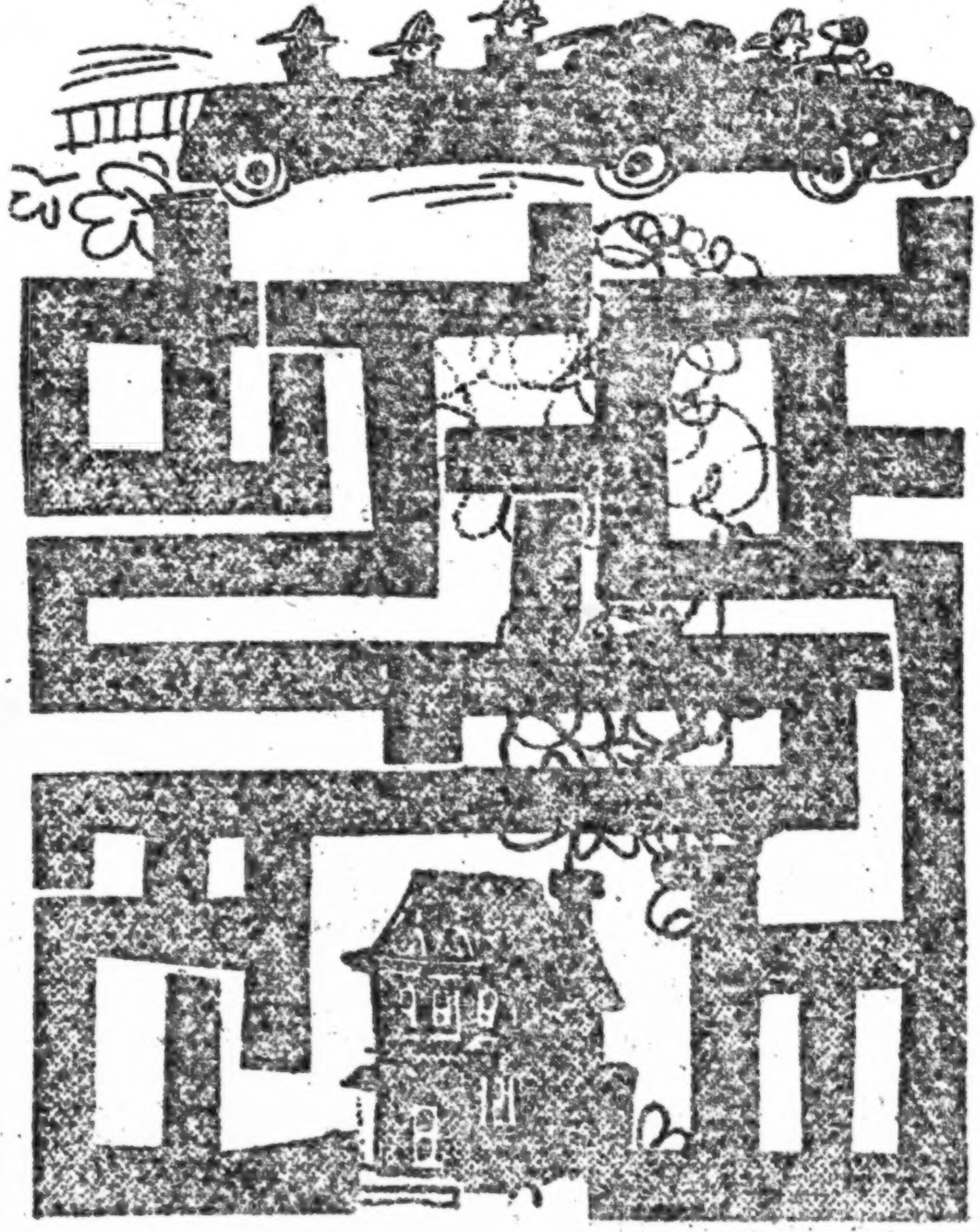
Grade 2 Boys

Remove the paper and pencil from your envelope. Today we have a game that we can play with a friend, so select a partner and we will begin. Your paper has rows of dots on it which can be connected to make squares. When it is your turn, draw one line connecting two dots--the line should be straight up and down or straight across. If you draw the last line of a square, put the first letter of your first name in the square. When all the dots have been connected, the one who has completed the most squares wins.

When both you and your partner have filled your sheets with squares, write your name on your sheet, put the sheet and pencil back in the envelope, and pass it in.

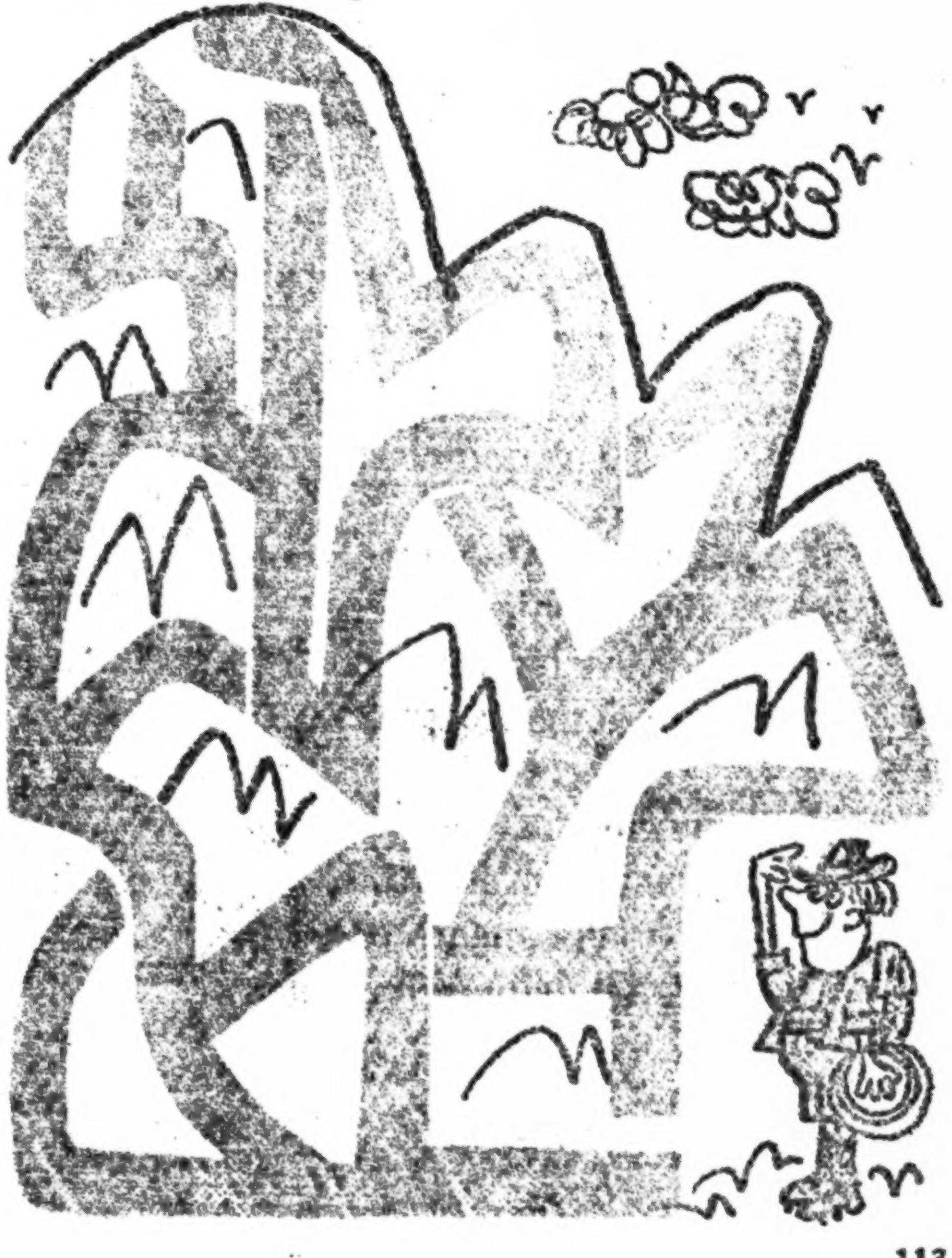
FIRE ALARM!

The fire company just spotted a fire on the other side of town. The firemen see flames and smell smoke, but they need your help to find the fastest route.



TO THE TOP!

Yodel Lee has great hopes of reaching the mountain peak, but doesn't know which trail to take. Come along and guide him to the top.



CRAZY TALK

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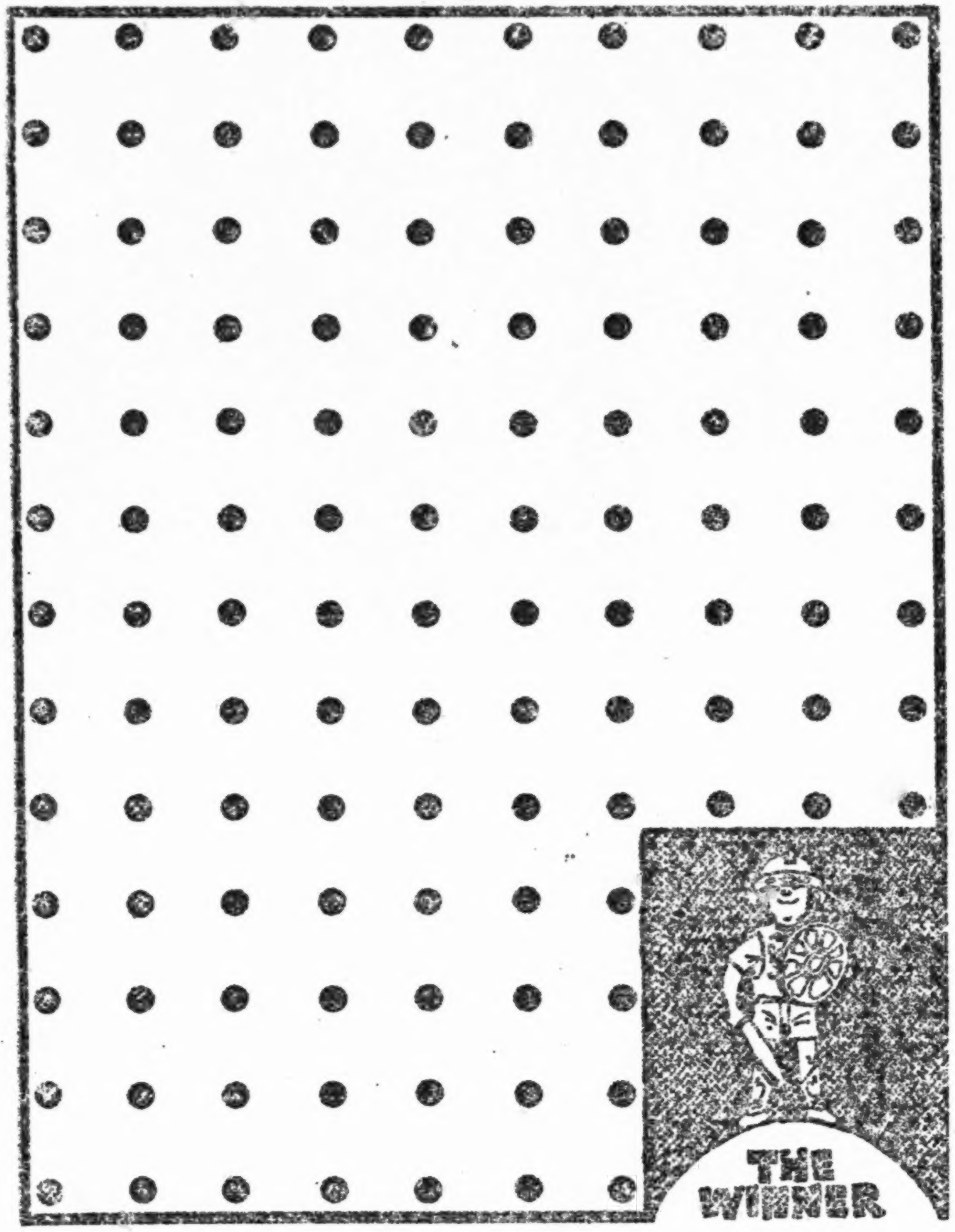
a DOG MEET in A strawberry Table the baseball never SAW a glass of WATER OR An Elephant GANG up against [illegible] APPLES [illegible] fat COWBOY AT The pudding skyline and HEMLINE of Yesterday [illegible] well AS a TALL GIRAFFE RESTAURANT in the VERY CENTER of the ONLY chair AT any old CLOTHES provided by the CAPTAIN ten [illegible] number but not in THOUGHT.

THE BLOCK GAME



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TEST INSTRUCTIONS: Wednesday, August 2, 1967

Groups 3 and 4

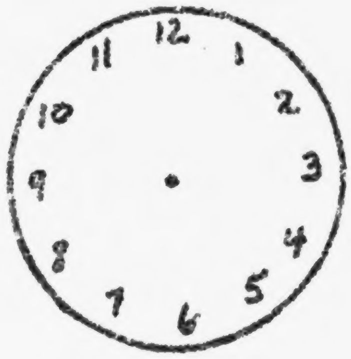
A. REMOVE YOUR SHEETS AND PENCILS FROM YOUR ENVELOPES AND PLACE THEM ON THE TABLE (FLOOR) IN FRONT OF YOU.

B. You have been studying the ways to measure things. Today, you will show how you measure time. On the first sheet in front are six clock faces. I will tell you a time and you will draw it on the clock. Remember to show the difference in the short hour hand and the long minute hand.

1. School starts around 9:00. Draw 9:00 on Clock No. 1.
2. Surprise time ends around 11:00. Draw 11 o'clock on Clock No. 2.
3. Lunch is eaten around 12:30. Draw 12:30 on Clock No. 3.
4. School ends around 3:00. Draw 3:00 o'clock on Clock No. 4.
5. What time do you get up on school mornings? Draw the time on Clock No. 5.
6. What time do you go to bed on school days? Draw it on Clock No. 6.

C. WRITE YOUR NAME IN THE UPPER RIGHT HAND CORNER OF THE PAGE AND RETURN IT TO THE ENVELOPE.

1.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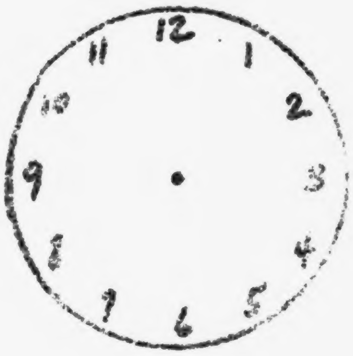
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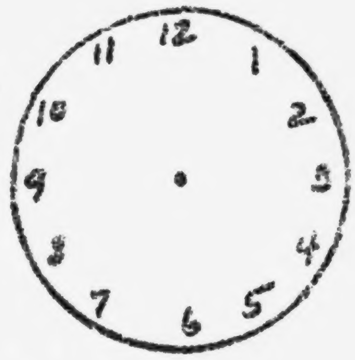
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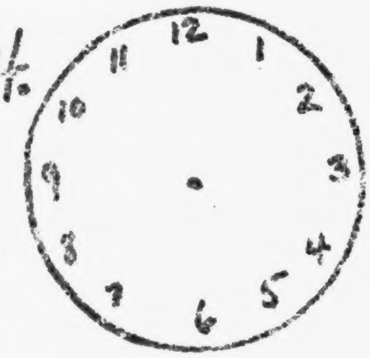
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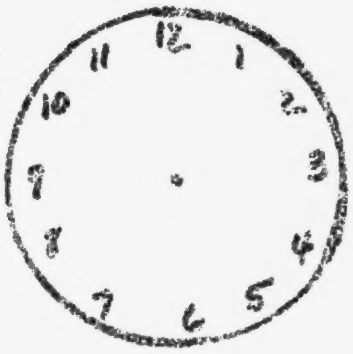
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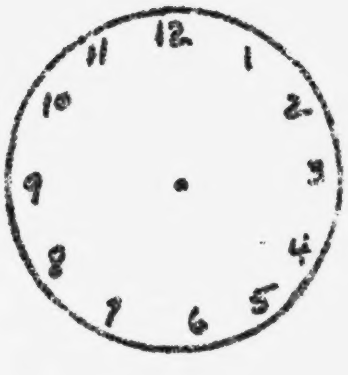
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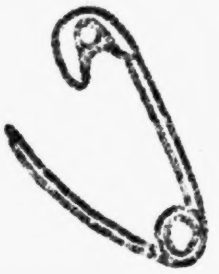
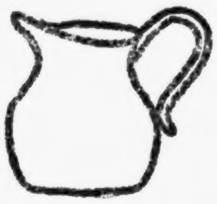
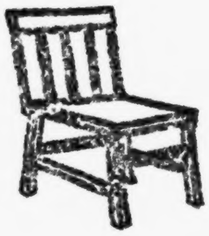
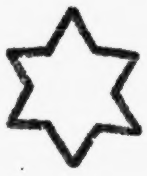
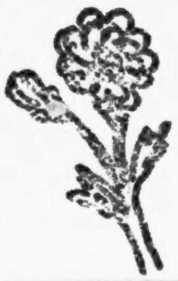
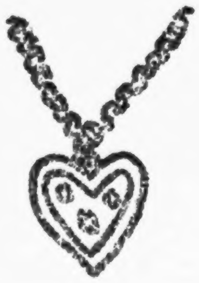
TEST INSTRUCTIONS: Tuesday, August 8, 1967

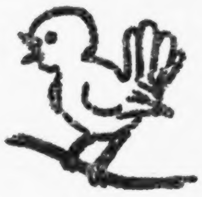
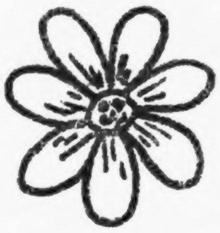
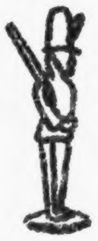
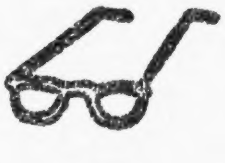
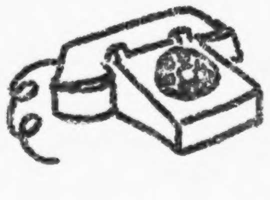
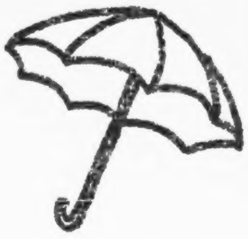
A. REMOVE YOUR PAPERS AND PENCILS FROM THE ENVELOPES AND PLACE THEM ON THE FLOOR (TABLE) IN FRONT OF YOU.

1. In the box beside the PIN, draw an arrow pointing up.
2. In the box beside the PITCHER, draw a circle, and draw a line under it.
3. In the box beside the CHAIR, draw a square, and make an X inside it.
4. In the box beside the STAR, draw a circle and make a line across it.
5. In the box beside the FLOWER, write your first and last names.
6. In the box beside the LOCKET, write your age (first and second groups), and your birthday (third and fourth groups)

B. (GROUP 1 ONLY STOPS HERE.)

7. In the box beside the BIRD, draw a triangle, and then draw a circle to the right of it.
8. In the box beside the FLOWER, draw an arrow pointing to the left side of your paper.
9. In the box beside the SOLDIER, draw a line that is shorter than the soldier.
10. In the box beside the GLASSES, draw four small circles, and color in the second one.
11. In the box beside the TELEPHONE, make a square, and then make a line that is taller that the square.
12. In the box beside the UMBRELLA, write your address -- your house number and street.
13. On the back of the test, draw a funny face.

APPENDIX 4

SCRIPT OF: "ART WITH FRIENDS" SLIDE/TAPE PRESENTATION*

Prepared by: Educational Facility, Institute for Behavioral Research, Inc.

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*For purposes of this report, the script has been reproduced exactly as it is presented on audio tape. An oral presentation style has been retained along with pause and emphasis punctuation written into the original script.

ART WITH FRIENDS

During the summer of 1967, a unique experiment in education was undertaken at the Sidwell-Friends School in Washington, D. C. This was a six-week program in the arts, designed to strengthen the general learning behaviors and concepts underlying academic skill, for those children experiencing difficulty in their early school years. One hundred and twenty underachieving children were enrolled in this summer program: one hundred from the Adams-Morgan area in Washington, and the remainder from the more affluent outlying city areas and the suburbs.

The program was funded from a variety of public and private sources, evidence of the broad base of support for this type of activity. In addition, the Sidwell-Friends School, a private school vitally concerned with the needs of the local community, provided facilities and general staff support for the conduct of the program.

The Friends/Morgan arts program was staffed by experienced, dedicated, and highly motivated teachers -- each a specialist in the arts or grade-school teaching. These teachers were supervised by Mr. John Arnold, principal of the Sidwell-Freinds Middle School; Mrs. Sally Smith, author of books and articles on mental health; Dr. Alfred Simons, former guidance counselor at the Morgan School; and Mr. Ben Bostic, science teacher and President of the District of Columbia Classroom Teachers Association. Arts consultation was provided by Miss Mary Averett Seelye, founder of Theater Lobby and well-known performer in poetry and dance. The teachers were paired into teams -- an artist teacher who led the team -- and a research teacher who lent expertise in dealing with young children. These teachers, drawn from a variety of arts disciplines -- worked together with Mr. Arnold -- Mrs. Smith -- Dr. Simons -- and Mr. Bostic -- to create a unique and new world for the children in the summer arts program, and to learn by problem-solving, questions, and experimentation, how children best learn those skills required for academic achievement.

The teachers were assisted in the conduct of the program by high school students, from both the Sidwell-Friends School and the Adams-Morgan area. These student-interns assisted with the arts activities, -- the research activities, -- or, as "anchor interns." The anchor intern was assigned a particular group of children. He was to assist them in getting to class or solving minor problems throughout the day.

Although the major emphasis was the development and conduct of the arts program, -- certain research functions were incorporated as well. The research activities were funded separately, and they were conducted by the Institute for Behavioral Research, of Silver Spring, Maryland, under the supervision of Mr. Harold Cohen, its Educational Director. Other IBR staff members were assigned to this research effort, "Measuring the Contribution of the Arts in the Education of Disadvantaged Children" called C-A-E. Their major duties were twofold -- the pre- and post-project evaluation of student academic skills -- as measured by standardized testing instruments -- and the management of a daily research and evaluation effort conducted during the summer program.

The Friends/Morgan Project was designed to serve a multitude of purposes. As Mrs. Smith noted in her curriculum guide, the program was designed "to inspire the children's will to learn and encourage them to associate pleasure and success with learning."

In addition to these goals, the program proposed to strengthen the perceptual and conceptual abilities, assumed to be underpinnings of reading and arithmetic skills. By designing certain kinds of activities within the art classes, the program hoped to: sharpen listening, observation, and motor skills; increase awareness of spatial relationships, sizes, shapes, structures, and sequences of time; to increase and extend vocabularies and information, and to give more concrete meaning to numbers and arithmetic concepts; to stimulate discovery and problem-solving; to promote patterns of organizing thoughts; and to develop familiarity with the process of symbolizing. The project was designed to begin with the interests and skills that the children frequently display in their everyday lives in the community. The project planned to build upon these interests and skills, and incorporate them into programs where they could be used to shape other, more academically oriented behavior. To achieve these ends, each child would be enrolled in four arts classes each morning, and one small group (called a club) during the afternoon, where both interests could be exploited and skills developed.

How can the arts strengthen the underpinnings of academic skills? WHAT DOES A CHILD NEED TO KNOW BEFORE HE CAN LEARN TO READ? How can he tell a "p" from a "b" if he is not sure which is "up" and which is "down"? In Dance, a child will learn to "point up with his right hand," to repeat rhythms and patterns, and to memorize a dance sequence. It takes a great deal of eye/hand coordination to write, and it's hard to write if the child doesn't have it. But, in Woodwork class, when the subject of concentration is to hammer the nail in straight, so that the pool table will stay together, the student might really try harder. Some children may sit in a classroom endlessly and not quite be able to sort things out so they remember what the teacher said at the end of class. But when they have the role of the Wolf in Little Red Ridinghood in Drama class, they try very hard to remember the sequence of the story they have listened to before they get up on the stage.

Six weeks is not long to work on the complicated business of listening to, imitating, and talking -- that has prepared the middle-class child for reading, writing, and pondering. It's fun to begin academic study with the skills of the arts.

The concepts that were proposed as the underpinning of academic success were divided into five themes. During the first two weeks, for example -- the teachers in all the arts and all the clubs set SPACE as the general topic within their art, and the children measured up and down in Woodwork, jumped up and down in Sports, painted up and down in Art, crawled up and down the Time Tunnel Club, and looked up and down in Drama -- all within the context of some broader activity. Each art teacher determined the activities of his medium, which would most effectively incorporate these themes for these children.

Before the demonstration program began, a number of preparatory steps were undertaken. These steps were: staff training -- for both teachers and interns; selection of students and student testing; and preparation of both the arts programs and the environment of Sidwell-Friends School.

The first step in the staff training regimen, was begun by the project and curriculum designer at the Sidwell-Friends Middle School during the early spring. In these sessions, the artist and research teachers were familiarized with the general goals and the conceptual framework around which the project was organized. Aided by scientists, mathematicians and reading specialists, examples were presented for developing specific art concepts and relating them to the academic objectives of preparation for better reading, writing, and arithmetic.

Following these initial sessions, the project staff began a series of evening and weekend training classes directed by the CAE staff. These training sessions presented techniques that could be employed for the environmental design of the program -- and operant psychological techniques which could be used to formulate instructional methods and to influence student behavior.

The student interns also received training by the CAE staff. The emphasis of these intern training sessions was directed toward the maintenance of performance standards within the arts curriculum setting -- the importance of and means by which accurate behavioral records could be kept of student behavior -- and how the interns could be instrumental in assisting the artist teachers. The interns were also given a battery of standardized tests, to determine their competence in specific academic and problem-solving skills. These tests formed a pre-test battery for later comparison with post-testing done at the end of the program. To facilitate the students' ability to handle large quantities of data -- and to help them to understand the nuances of behavior with which they would be dealing -- special homework assignments were prepared where the students were required to develop a program for changing their own behavior in their home environment.

During the week before the start of the summer program, another series of training sessions was conducted at the Sidwell-Friends School. These included demonstrations by the artist teachers of some basic aspects of their particular arts activities, a presentation of the daily scheduling and operations of the program, and an explanation of the interrelationship of the numerous aspects of the program. Concrete examples of planned teaching staff and intern interaction in the program, and final summaries by the Friends/Morgan and CAE staff concluded this last phase of training.

The selection of students for the summer program was begun in the early spring by Dr. Simons, guidance counselor at the Morgan School and assistant director of the summer project. Students were selected from the Morgan School area who were considered by their teachers -- and by test grades -- as underachieving. Parents of these students were contacted and their cooperation and help was solicited. Before the end of the normal academic year, over 100 students had been selected from the

Morgan School area and were guaranteed enrollment in the program.

Before the termination of classes, all children present in Kindergarten through 3rd Grade were tested with the Thurstone Primary Mental Abilities Test. These tests were given at the Morgan School over a period of several days by staff from the Institute for Behavioral Research. Over 500 children were included to ensure that all students selected for the summer arts program had been tested. Entire classes from the Morgan School were tested as units. From these children, a comparison group was developed and maintained over a one-year followup period. The 20 students who were chosen from the suburban areas, were tested separately at the Sidwell-Friends School.

The environmental reshaping of the Sidwell-Friends Middle School was begun about two weeks before the program started. Room arrangements were made, furniture relocated, special environments of classes and clubs constructed, reading and art material purchased for these activities, supplies and raw material for a variety of classes and clubs gathered, artwork developed to enliven the building, and final touch-ups completed before the start of the program.

A special research office space was developed from which the CAE staff could operate. Behavioral record-keeping forms were devised for use of student interns, research teachers, and artist teachers, within each of the various classes and clubs. Master record-keeping charts were formulated for visual display of all data maintained in the project. Special tests were developed for use each day in what was called "surprise time." Schedules were outlined and maintained -- and record-keeping equipment was gathered for the variety of visual and verbal records that were needed.

Finally, the staff and environment were ready for the rush of students on June 26th, 1967. Each day, the children gathered in the Adams-Morgan Community about 8:00 a.m. Excitement was high and the expectation for a rewarding day in the summer program was evident. The buses loaded at the Morgan School -- arrival at the Friends School was usually accompanied by greetings from the staff and a chorus of songs from the buses. The school day began with the children streaming through the door and meeting their respective intern -- who directed them to their home room.

In the home room, the class day activities began. Attendance was taken, band-aids were put on scratched knees, the students enjoyed milk and cookies -- the morning treat -- and the home room research teacher was able to set the tone and mood for the day. A friendly, relaxed, and fun home room period -- for the first 20 minutes of the day -- was a good opportunity for the artist teachers to discuss any special preparations for that day, with the curriculum coordinator and project director.

Following the home room period, the anchor interns accompanied each group of children to the first art class.

The children were scheduled for four art periods during the morning.

During the home room period, the children had been separated into six home room classes -- one each for the 3rd and 4th grade age groups, and two home rooms each for the 1st and 2nd grade children, to insure that the younger children would be properly supervised. Each half of the two lower grade groups was identified by a letter -- x or y. During the morning classes, an additional split (designated B and G) was sometimes made between boys and girls in a grade group -- to insure that they would be taking classes suited to their interests. It may be seen that the Music and the Drama classes were the two that took an entire grade during one period. Sports, Woodwork, Painting, and Dance classes took smaller groups -- based either upon requirements for a smaller number of children or for handling one sex at a time. The goal of all of the classes was to work within concept themes -- using the qualities of particular art subject matter to develop specific aspects of the themes. These concept themes -- including for Week 1 and 2, space relationships -- for Week 3, size -- Week 4, shapes and structures -- for Week 5, sequences of time and speed -- and for Week 6, measure, were the integrating elements of the program. In Week 1, for example, the space relationship concept emphasized touch: "Here I Am," "This Is Me," and parts of the body in space. Subconcepts such as "Up and Down; Within and Around; Apart and Together; and Top and Bottom" were related through the art classes. It was the function of each of the art classes to provide an arena within which these concepts would be exposed, interacted with, and learned.

In Music, the prime art ingredients included both listening and active participation. Following instructions, developing auditory discriminations, memory, and organization of thought, were woven into the entire fabric of the music program. Involvement with the concept themes included singing songs like "Eensey-Weensey-Spider," rhythmic drill, and marching. The use of metronomes to emphasize concepts of time and speed, songs of the seasons, musical counting as a form of measure, the organization of thought through singing simple stories in rhyme, and using instruments to accompany them by simple rhythms, were also used. The children's activity and enthusiasm in the Music Class were a delight to all staff members.

In Sports, the principal involvements centered around number concepts -- grouping, order, counting, and problem-solving. Perception of relationships -- including parts to whole, isolation of common elements and characteristics, distinguishing likenesses and differences. Symbolism, and other basic numerical concepts, were woven into the fabric of the Sports program. The principal media were games and sporting activities, with both individual and group participation. Involvement in these sports activities generally centered around the "male" sport forms -- however, the boys participated periodically with the girls of the Dance class to point up the relationship between these two activities. As in all the classes, the master sports teacher was involved not only in the development of the activity, but also in the recording of the results of his program. These results were returned to the research staff and the curriculum coordinator for evaluation and for use in the development of future programs.

In Woodwork, the curriculum objective was to establish both numerical and language skill behaviors. Emphasis was placed on the perception of relationships -- first their recognition, then their construction, then their description with words. The basic arts concepts were developed through a series of graded exercises in the Woodwork course. Proper technical facility was not emphasized -- however, elemental skills were required and had to be developed to complete many of the problems on which the students were working. Discussions with the group and group involvement in problems were recurring elements of the Woodwork program. Helping one's buddy to create a desired product was also one of the student behaviors evolving during this program. However, doing it on his own -- designing and developing that boatsail so it worked appropriately, was one of the joys of these physical exercises. The reward associated with recognition by teachers and peers for a product well done was important indeed -- but nothing appeared to be so satisfying as the pleasures derived from self-recognition of a product done well by a student's own hands. Each behavior -- attendance -- minutes of active class participation -- tasks in process -- and products completed, were all recorded by the research intern for evaluation of both student's performance and program efficacy.

Test time -- called "Surprise Time" because each test was delivered in a mysterious, unmarked envelope, occurred midway through the morning's activities, at 10:30. Here the CAE research staff gave a short test covering each day's activities. These tests were specially prepared by the research staff, after consultation with the curriculum coordinator, and they probed the degree to which the children were able to express on paper -- or through other recordable media -- the results of the learning of concept themes for the previous day. Surprise time was about 15 minutes in length, and the tests were conducted in the art classrooms immediately following the second class. Verbal and visual instructions were given regarding the use of the test forms -- research interns assisted in settling the students down for this testing period after an active class session -- and the tests were administered -- usually with all questions being read aloud. Following the test, the students were given fruit juice during this mid-morning break.

All results of these surprise-time tests -- and the other data received from the interns and staff -- were constantly being recorded in the CAE research area on graphic forms. New surprise-time tests were developed each day, usually based upon concepts indicated as covered during the previous day's activities.

Following surprise time, and before lunch, the remaining art classes were conducted.

The Drama program created an intriguing and significant arena for the development of language skills -- through observation, participation, and problem-solving. Concept themes were related through listening behaviors -- following instructions -- in dramatic interpretations of classic children's stories, for example, Peter and the Wolf -- in group participation in and developing solutions for problems concerning spatial relations in size both between and among people -- and size and spatial relationship between people and space or things. Periodic instructional reviews were conducted by the Drama teacher to insure that the appropriate concepts had been learned, and to allow the students to participate verbally in the description and discussion of these events. Smaller group interactions were also possible by using the artist and research interns to develop story lines, drama plots, and to expand on the themes exposed during the individual and large group participations.

In Painting, as in Woodwork, the development of both numerical and language concepts, were the curriculum aims. The awareness, analysis, and use of simple shapes -- and the patterns they make as they are repeated -- developed extensively throughout the program. The use of these simple shapes to describe spatial relations -- left, right, under, above, beneath -- was an elemental aspect of the children's initial involvement in the painting program. Individual effort and investigation were heartily encouraged, and verbalization about the visually described forms was reinforced. At times, the creative efforts of a child brought forth such striking achievements and understanding that it lead the child and class to new areas of investigation. Concentration on, and thorough exploration of, a particular topic of interest was evidenced by many children. Each of the tasks involving symbolization, observation, visual discrimination, vocabulary development, organization of thought, story writing, and specific artistic achievement, was recorded wherever possible by tape-recorded interactions between the student and the staff members.

When striking examples of a creative effort or new techniques occurred in one of the classes, brief but pointed discussions were conducted by the curriculum coordinator with teachers of allied interests, whose programs it appeared would benefit from the use of these new techniques.

Like Sports, the physically active program in the Dance class concentrated principally on the development of number concepts, seeing parts from wholes, repeating sequences, and eye-hand coordination. Simple Dance activities were developed first -- and then woven, over the course of the program -- into more complex and formal dance formats, usually including accompaniment by a pianist or a tape recorder. Location in and relations with space, parts to wholes, numerical groupings, and symbolism, were topics of concern within the Dance program. Some of the more abstract concept themes could be readily related through the Dance class by movements of the body. Simple concepts in combination with interpretation, problem-solving, coordination, and memory skills -- produced highly involved and articulate Dance themes and movements.

The program designer was well aware that, even in such an interesting and exciting program as this -- there were bound to arise occasions where impulsive students could find some entertainment in activities incompatible with the daily class program. For handling such situations, a crisis teacher position was developed. If an overactive student could not be maintained either through the program content -- or through the sensitive individual attention of an intern -- then, a brief stay with Dr. Simons, the crisis teacher, was indicated. Fortunately, these situations did not occur frequently, but when they did, the interns or the crisis teacher were able to handle them readily. The crisis teacher read stories with the children, listened to their complaints, and counseled them on how to handle specific situations. During the last 2-1/2 weeks of the program, he was given other duties, as there were no crises.

Lunch time came as a pleasant break from a morning of concerted art involvement. Each child returned to his morning home room for his bag lunch -- which was provided by the parents as part of their responsibility to the project. Free milk and friendly staff and intern companionship were provided by the project. This was a period for settling down and relaxing before the afternoon club activities which were to follow. Short stories and other quiet activities were a part of the lunch-time period in the home room.

Following lunch there was a one-hour free-time period, during which the children could engage in any one of a number of chosen activities. There was a great deal of hustle and bustle during this time as each child decided what he would participate in that day. They were accompanied to these activities by the anchor interns. One of the most frequently chosen was a daily movie shown in the auditorium of the school -- with teachers and other staff members in attendance to both set the scene -- and to later discuss the movie. Some students chose to spend their free time out-of-doors in the recreation area where a number of games and free play activities were scheduled. Others, who desired a more relaxed free period, could spend it under a tree, reading a story with their favorite intern or research teacher.

The lunch and free-time period also provided a time for the artist teachers to gather in the teachers' lunch room and discuss the morning's activities, problems, attainments, and interesting incidents. Such direct feedback was valuable in the maintenance of such an interrelated program.

Following lunch and free time, the grade grouping of children was disbanded and each child was assigned to a club -- scheduled either by his request for it or -- in the case of those students who stated no preference -- assignment to a club based upon its probable interest to him. The activities in the clubs were to stimulate "doing" -- to increase vocabulary and information -- as well as being predicated upon the learning that had taken place earlier that day in the art classes. Each club was also closely aligned with the major emphasis of one of the arts classes.

The Folk Rock Swingers, for example, were involved in the extension of the principles learned in the Music class to more free choice musical situations. Here, children learned not only to appreciate and participate in the musical activity, but also to produce the music itself. Small bands were formed by the students, using the instruments that they constructed. Investigation was made of the means by which to produce musical sounds -- and the halls echoed with merry music throughout the afternoon.

The Secret Agents club was, as the name denotes, an eminently exclusive and secretive organization. Investigation was made of the arts of finger printing, stealth in trailing suspects, makeup and disguises, and other semi-scientific skills involved in criminology and sleuthing -- all activities designed to strengthen observation and listening skills.

One club was named Dr. Kildare and Nurses. The little girls, particularly, became deeply involved in it and thoroughly enjoyed their club, which was headed by a practical nurse -- and their "medical expertise" developed in these club sessions permitted them to be willing participants in a number of other between-club activities during the program. If ever there was a pride taken in the nursing profession, it was certainly here with their Dr. Kildare and Nurses club.

The Storekeeper's club was involved in human relations of a different sort. Business principles, concepts, and procedures were discussed and practiced throughout the term of this club. Concentration was placed on storekeeping skills required in the normal operations of small businesses -- like grocery stores -- lemonade stands -- and other money-making enterprises. Products were traced from their point of origin in farms and industries, through the series of distributors, down to the storekeeper and eventual purchaser. Emphasis was also placed on the number skills required in counting money, making change, and inventory control of products.

In the Cavemen club, the same models of inquiry were set as in the rest of the clubs: space, shape, time, speed, measure and problem-solving skills. Was it necessary, for instance, for a caveman to know left from right, or east from west? So, how did he know -- and what was the social organization of a caveman's life -- how did language begin? -- through grunts? -- angry grunts?, happy grunts? -- what skill did the caveman require to increase his relative power over the animals of the world?

In the Hercules Greek God club, ordinary human considerations were not always so much in evidence. The thematic concepts remained the same. Emphasis was placed upon measurement -- through throwing the discus or shot-put -- space, by building a maze for the Greek Gods to go through, over, under, around -- and shape through the considerations for changing from a human to a monster as the Gods did. Learning where and how Gods lived and what they did provided new information, myth, and language. Certain problems arising in the Greek Gods club did not lend themselves to readily identifiable solutions -- for example, like Icarus, they tried to fly.

Two of the clubs had rather allied goals and means of working toward them. These were the Handicrafts, Inc. and the Art Gallery clubs. The activities in these two clubs were directed toward the involvement of children in creating products, which were both useful and beautiful, for their homes. The theme concepts were incorporated into these activities. As in the art class, emphasis was placed upon the development of both arithmetical and language skills. However, here more useful products were generally developed, and the art of display was studied. Beauty, too, was a matter of high concern.

The Seven Seas club was involved with the excitement and daring of journeying to a new and foreign place. Numerous products developed during the course of this club relied on the thematic concepts of the program. How to put the world together -- what is near, far, into and out of, regarding the world -- measures of latitude and longitude, distances around the globe -- these and many other topics were investigated by the world travellers of the Seven Seas club.

Two other clubs -- Collectors and the Time Tunnel Explorers -- had similar means of investigating a general area of discussion: science. These two clubs emphasized the categorization, description, and evaluation of a variety of natural and man-made phenomena. Items were investigated, by all the senses, temporally -- spatially -- and historically -- by their similarities to or contrasts with other categories of natural or man-made elements. Flexibility here was the keynote, rather than formalized club directions.

As it could have been anticipated, some of the more active and engaging pastimes were held by the Indians from Hiawatha's Indian Tribe club. Building totem poles, teepees, and campfires, learning where plants grow, and sequences of events, such as plant growth, harvest times, moon cycles, seasons, ritualistic tribal dances, and a variety of other activities were the ingredients in the fast-paced program of Hiawatha's Indian Tribe.

The Monster and Masks club was designed expressly for those children who had strong interests in Drama -- and the principal objective was the development of language skills through the use of art concepts. Distortion of space, time, and size were keystones in the workings of this club. How to distort the body -- making birdlike monsters, groundlike monsters -- the use of pantomime in describing the relationship of the human body to its space and time -- and relations of the monster theme to monstrous inner-city problems. These were some of the subjects dealing with appropriateness, distortion, and grotesqueness which were explored by the Monster and Masks club.

Monsters of a more real sort were to be found in the Tarzan's Jungle club. Discussions, field trips, story reading, the construction of displays and presentation of live exhibits were the functions of the Jungle club. Again, the theme concepts were related -- and activities centered about such topics as the size relationships between jungle trees, plants, and animal life -- the concept of jungle seasons -- how a creature like man, if born in the jungle, could survive if placed in a modern city -- and the development of tools and weapons necessary to survive within a hostile jungle environment. Displays of the products created within the Jungle Club were also a delight to the children of the entire project.

The Smokey the Bear nature club dealt with activities related to plant and animal life, but in this instance -- wildlife which was closer to home. This was essentially a science-oriented club and the media for club action included discussions, films and stories, personal problem-solving -- both on paper and with real-life subjects -- and field trips to collect those nature items necessary to conduct proper investigations of this topic.

The final club activity -- the Do Nothing club -- was developed for those children who needed individual attention, and was conducted by the crisis teacher. Although the attendance varied from day to day, the number of children in this club was usually small and the club was dissolved after three weeks.

Some of the most exciting club involvements developed when two or more clubs cooperated and pooled their skills to engage in a single activity. One of the first of these was the cooperative venture between the "Folk Rock Swingers" and the "Hiawatha's Indian" clubs to stage tribal dances accompanied by tribal music. Another was when the "Dr. Kildare and Nurses" club took an expedition into the jungle to assist in controlling an epidemic among the population. One day -- immediately following an Indian attack on a frontier settlement, in which a number of the braves were wounded -- the nurses were again called in to give first aid and medically repair all of the casualties on the battlefield.

Each Friday afternoon, during the course of the summer program, a special event was presented in the auditorium which would be of interest to all of the children. These programs varied -- however, the special topic was always centered around the activities of one of the clubs. One of the first of these specials was "Tarzan's Snake Boy." A high school student from the local community volunteered to bring in and discuss (with the Tarzan's Jungle club director as presentation leader) some of his jungle pets acquired while his father was stationed in Southeast Asia. Another special event was a visit by a local D.C. rescue squad vehicle and crew. The topic here was "Fist Aid, Life Saving, and General Good Sense When Faced with a Disaster." Another afternoon, Mr. Buck Clark, the club leader for the Folk Rock Swingers, gave a concert of African tribal music, -- while Naima Prevots, the Dance teacher, did some improvisations. A special that the children found particularly interesting was a live demonstration of glass blowing given by local professionals. For those interested in drama, a puppet show presented live on stage was the highlight of one Friday afternoon. A unique Friday special offered film programs about Indians and a visit from the cultural staff of the Bureau of Indian Affairs. Songs, dances, costumes, tribal protocol, and other activities were presented.

At 3:00 the demonstration program's activities ceased for the day. The children gathered up the products of their creative efforts, and were assisted by the interns in finding their proper bus. As they checked in on the bus, there was much happy chatter about the events of the day, and they eagerly questioned the staff about the next day's activities.

At the end of the day, the artist and research teachers would generally gather informally in the research office to discuss the evaluation forms they had filled out; describe successes, problems, interesting events with the curriculum coordinator; and review the data that had been posted on the data displays.

A special event conducted during the course of the summer program was a Parents' Night. During this evening meeting, each of the art classrooms and club meeting rooms were open for inspection -- and certain events were scheduled for the parents' participation -- such as group dance activities and group singing. Through these activities, plus their visits to the art classrooms and club meeting rooms where activities were in progress, parents learned the general procedures for the day in which their children were engaged. It was, in effect, a PTA meeting with the added wrinkle of parental participation and involvement in many of the arts activities. The next day, to the delight of the children, an exhibition of the parents' art work was placed on display in the building.

At the close of the summer program, on August 8th, the products of six weeks' industry were exhibited throughout the building. Art work, displays, models and construction, and a variety of other tangible results of the summer program were much in evidence. Results of the other arts activities were presented as well -- and a final arts demonstration program was given in which all the students participated through their various arts activities. Dance, music, painting, woodwork, sports, and drama all conspired to present this final pageant at the end of the program. The children created all the props and costumes -- provided the music -- and performed the dance features of this program. A child who had cried during the first weeks of the project because of her fear of failure -- performed confidently in the starring role. It was an exciting event.

The summer program was concluded with a picnic and field day on the grounds of the Sidwell-Friends School. Large quantities of hot dogs, soft drinks, potato chips, and ice cream were consumed -- and fortunately -- Dr. Kildare and the Nurses did not have to be called to administer aid.

Even though the formal operations of the summer program had concluded, a number of other activities were to continue through the 1967-1968 school year. A series of post-program student performance evaluations were scheduled during the school year, for administration at the Morgan and Adams schools. It was here that one of the more significant aspects of project evaluation would take place -- in the students' own schools after the start of the school year. During the months of September and December of 1967 and March of 1968, the Primary Mental Abilities Tests were administered to the children who had participated in the summer program and to the comparison group of children. The initial results of these testing administrations indicated that the total group of children who had taken the summer program made advances in spatial relations, perceptual speed and verbal skill tests of the PMA battery. More striking was finding that when the younger of the participating children, those who were in the first and second grades during that academic year, were considered separately -- significant improvement was noted in their perceptual speed, spatial relations, and verbal skills. This is in contrast to the comparison group of first and second grade children who appeared to remain stationary in all areas except number skill -- an area in which the scores of the participating group did not increase significantly. Later results of the PMA testing indicate -- that the first and second grade children in the comparison group recorded greater academic gains than did the older children -- and, that after initial high gains in perceptual speed, their progress became stabilized at a near normal rate. These and other test findings indicate the effectiveness of the summer program in developing certain academic skills, and also they point out the areas for refinement of technique to insure optimum learning of these and other behaviors. Analysis of these general tests, the daily tests employed throughout the course of the summer program -- and the undocumented changes in the children's attitude toward learning -- indicate what should be retained and what should be changed to insure a well-rounded and important summer arts program.

Another function of the summer program activities was to determine the degree to which those who teach -- in this case the interns -- learn as much as the students with whom they are dealing. Significantly, each type of intern, research, artist, and anchor -- were found to have made gains on all but one of the tests administered as a part of the pre-post test battery. Also, the interns from the Adams-Morgan community were found to have made more important gains -- from a lower pre-program level -- than those coming from the Friends School. Research interns increased their skills notably in areas such as arithmetic computation, arithmetic reasoning, and perceptual and organizational skills. Overall, however, it was the artist interns -- those who worked most directly teaching the children in the arts classes -- who made the most striking gains.

Many of the concepts developed through the summer arts program have been extended to Saturday classes for Adams-Morgan area children and are conducted by the interns at the Sidwell-Friends School. Teachers are only present at these sessions as general supervisors, but the attendance, enthusiasm, and involvement are no less striking.

What may be said generally about the Friends/Morgan Summer Project?

It has demonstrated that when well motivated teachers and a properly constructed arts curriculum are combined with underachieving, impulsive, and restless children in an atmosphere free of the traditional classroom constraints, significant achievement in both general learning behaviors and specific subject-matter skills can be achieved. Further, that a stimulating program can maintain the interest and attendance of children -- in the face of competing activity in the neighborhood -- at an average of 90% over the term of the project, prompt requests to stay later than the scheduled time, and change disinterest into active participation. Additionally, high school students can be employed and can contribute markedly to the program's success. Also, they can bolster their own academic and social skills in the process. Moreover, a "joy of learning" can result from such a program, where meaningful incentives and feedback are provided for the children through the results of their own handicrafts and skills.

The results of Friends/Morgan Summer Project indicate: First, a more lengthy exploration should be made of the arts procedures in the summer program setting -- to analyze the effect of a longer-term study. Second, additional work must be done to shape meaningful programs and procedures, for those segments of this group which did not achieve significant educational development. Third, a major thrust should be made toward the extension of the proven procedures to the academic community at large and use should be made of them in existing school settings -- for the ultimate benefit of larger numbers of similar children. Continuing effort on the part of interested professional and non-professional groups is needed to effect the required goals -- the maximally efficient learning program for all students -- in all age ranges. Working in these ways it will be possible to maintain what is useful, revitalize what was lost, and create what is required in an educational process which, more than ever, must provide opportunities and skills for all of its students for a lifetime of thinking and productivity.

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